

THE
Compleat Farmer :
OR, THE
W H O L E A R T
O F
H U S B A N D R Y.

CONTAINING,

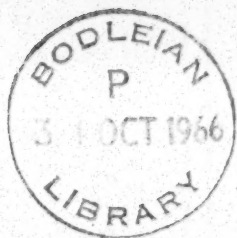
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| <p>I. Instructions for stocking a Farm to advantage.</p> <p>II. Of the Breeding and Management of Horses, Mares, Colts, &c. and the most approved Receipts in Farriery for all Manner of Diseases they are subject to.</p> <p>III. Of Bulls, Cows, Calves, Oxen: How to make the greatest Advantage of them, how to know when they are ill, and Receipts to cure all their Disorders.</p> <p>IV. Of breeding Sheep, and Receipts for their Diseases.</p> <p>V. Of Goats.</p> <p>VI. Of Swine, and how to</p> | <p>make them turn out very advantageous. Of feeding them and fattening them for Bacon, Receipts to cure the Gargut, Measles, and all their other Disorders.</p> <p>VII. Of wild and tame Rabbits. Of Dogs.</p> <p>VIII. Of Fowls. Of curing their Maladies. To fatten Chickens.</p> <p>IX. The best Method of managing Geese, Ducks, Turkeys, Pigeons, Bees, &c.</p> <p>X. Of making Hay.</p> <p>XI. Of the several Sorts of Grass, Seeds, &c.</p> |
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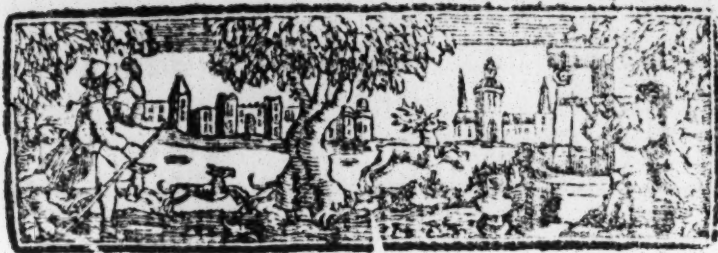
By Mr. ROBERT BROWN,
Of Hill-Farm, in Somersetshire.

D U B L I N :

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cury in Skinner-Row. MDCCCLIX.

*** No Country Gentleman or Husbandman would be without this useful little Book if they knew the Advantage that might accrue to them from perusing it.*





T H E
Art of HUSBANDRY.

C H A P I.

*Of several Sorts of Beasts, Fowls, &c. for the
stocking of Land.*



S a farm is of little use unless it be stock'd with beasts, or other animals, that may be employed in the labour and work of it, and for the supply of the market and kitchen: so the farmer is to consider what will turn to the best advantage, and what is most proper and suitable to his land, the uses he intends to employ it for, and the cost and charges of such a stock; that he may suit his undertaking to his purse. The common reckoning for stocking of a farm is three years rent; according to which rule

three hundred pounds will stock a farm of one hundred pounds *per annum*, which is commonly sufficient, except in very dear years. Concerning which sort of useful stock I shall begin with the horse, as one of the most noble, strongest, swiftest and most necessary of all the beasts used in a farm.

Of Horses and Mares.

WHERE you have a large quantity of pasture, either in several or common, or in woods or groves, it's no small advantage to keep a team of mares for breed: but where there is most arable, and little pasture land, stone-horses or geldings are more necessary, as may be observed in several counties of that sort. In Hertfordshire they make great advantages by buying colts out of Leicestershire of between two and three years old, which, at about six years old, they sell to gentlemen at London for their coaches. These colts improve much in their stature, and their work pays for their keeping; which makes it a double advantage to them, and gives the farmer opportunity of bringing them up to be fit for business.

If you design to have beautiful strong colts, let your stallion and mare be so, especially your mares; for the form and shape of the foal is generally more like the mare than the horse, and more particularly for the head and neck, which is the beautiful
part

part of the horse. Let both the stallion and mare be of lively brisk natures; for heavy dull breeders will always produce lumpish heavy colts: and see that they be of healthy sound constitutions; for your colts will for the most part have the same distempers with the stallions and mares: and if you desire to have large colts, be sure to have large-bellied mares, that the colts may have room to grow in, and give them good keeping, and then you need not fear their size, let the stallion be of what stature he will.

Make your mares as tame as you can: it's better to keep them to gentle, easy work, such as plowing an hour or two in a day, &c. than to have them wild; for by being acquainted with their keeper, and being soberly handled, you may with ease remove them from one pasture to another, bring them to be covered, and to take their colts from them: whereas wild mares are not only troublesome, but often destroy the colts in their bellies, by their wild leaping of ditches and hedges, &c. And the same care ought to be taken with colts to make them tame, which are otherwise apt to do themselves a mischief, whenever you have occasion to do any thing with them.

The surest way of having your mares breed, and the most profitable for the farmer, except he keeps his stallion to let out

to hire, is to have a place well fenced, that is good land to keep your horse in, and to let your mares go with your horse during the months of April and May : but your horse this way will not serve so many mares as if housed, nor be so fit for constant working the other ten months of the year : and therefore if you work him hard, or let him out to horse more mares than your own, you must take him into the stable, and feed him well ; and if the horse is kept in the stable, it is reckoned best to take the mare in too, for about a month or six weeks, and that she be fed well with hay and oats, and that about five or six days before you bring her to the horse, you let her blood on both sides of the neck, taking about a quart of blood out of each vein.

As to the manner of covering the mares, they have in the breeding countries, in the house where they keep stallions on purpose to let out to horse mares, a square hole with a door to it, big enough for the horse to put his head and neck out at ; to which hole they bring the mare for the horse to smell on, by which means they can see whether the mare will stand to the horse or not, without any danger of the mare's striking the horse, or his doing of himself any injury. If they find the mare willing to stand, they have her out into some broad place, where they lead the stallion out to her ;

her; and if he be unlucky and mad, with two men to lead him, and let him horse her: they reckon in the morning fasting, or in the evening, the best times of the day; especially the morning, and that the horse be well provender'd, and drink but little over night. When the stallion is dismounted, they commonly throw a pail of cold water on the mare, which they think makes her stand the better to her horsing.

After she is covered, they that are very exact in taking care of them, keep them to the same diet as before for three weeks or a month, and without work, and about September they take their mares into the house again, where they keep them till they foal; at which time they feed them with marshes and other moist food till the grass comes to be plenty: which are niceties the farmer seldom troubles himself about. If after they have foaled they keep them a night or two in the stable, and give them the best hay, grass and oats that they have, they think it sufficient.

The best age to breed at, is when the mares are from four to twelve years old, and much longer, if the mares have only been kept to breed on, and not work'd; and the horse from five to fourteen years old. I shall not mention any thing of the time of the moon, nor about the several ways mentioned for the procuring of horse
or

or mare foals; because I could never find them effectual, or any ways significant.

Let your breeding mares fourteen or fifteen days before their foaling, be well kept, which will not only make her have plenty of milk, but cause her quickly to take horse again: the best time for which is about twenty days after her foaling.

The best times for the weaning of colts is at Candlemas or Shrovetide: in this respect you must be very careful; for if your colts be not well weaned, well summered, and wintered, especially for the first three years, they will seldom prove either good or large: be sure, for the first summer to keep them out of the hearing of the dam.

When the colts are about two years old, it is the best time to take them up, and make them tame; and the year following, when they are three years old, back them that are to be for the saddle, only they must be used kindly at that age. The first year saddle colts should only be walked, and the second but seldom trotted, and that but for a little way: but we cannot in England or Ireland get upon a young horse's back without spoiling him: and for those horses that are for draughts, I never knew any good drawers, and gentle, that were broke after that age; nor can I think but that easy gentle work is good for young horses, to use them to it by degrees: but I would not have

have a draught horse, that I was desirous of being very curious about, wrought above one hour, nor a saddle-horse galloped, nor rid above ten miles in a day, till they are seven years old.

If your colts be any ways unruly or wild, at the first coming into the house, let them have no meat but what they take out of their keeper's hand; by which means you will make them gentle without any violence: if that will not do, keep them waking, and want of sleep will cure the wildest horse that is. But to prevent his being so, use him from his foaling to be fed in winter at hand in the house; and for some time when you back him first, never ride him but with a horse before him, and always in the company of as many horses as you can.

Whoever will keep his horse bridled and saddled some time after his riding a journey, and lets him champ on the bit till he is in good temper, and takes not off his saddle till he is cold, and then rubs the saddle-place well, and does not give him water when hot, nor ride him hard at first setting out when he is full, and that takes care to ride him softly for the last mile or two before he comes to his journey's end, will be sure not to have either a sick or a lame horse.

In Flanders they water their cattle, that they keep in the house, three or four times
a day,

a day, which they say is much better than doing it but twice, because cattle drinking so seldom, makes them drink too much at a time, so as to over-chill their stomach and guts in winter, and fill their bellies too full in summer.

But the most occasion that farmers have being for draught horses, I will recommend to them the choice of such as are strong, well limbed, and as near as can be, such as are of a height; for horses in a draught unequally suited, never draw at ease: and if they are well worked, let them be well kept, and then you may expect business from them. A good team of horses cannot well have a less allowance than forty quarters of oats in a year, besides good hay and good grass when they are out of the house. It will likewise be necessary that the farmer suit his horses to his ground as well as his other cattle; so that where the land is rich to have the larger, and where barren the smaller sort of horses, except he keep stone horses, and keep them always at hay and oats.

Fifty acres of fallow-land, is as much as can well be managed by a team of five horses; if it is stiff land they must be stout horses, or that quantity will be too much for them.

There are several epidemical distempers destructive to the farmer's stock: and tho' there

there are many pretenders to the art of farriering and cow-leeching, yet many of them are very ignorant, especially in the countries, the books that are writ upon that subject being chiefly collections from others, with a very small number of experienced receipts amongst them, so that but few can tell, out of so great a number, which to chuse, unless they had opportunities of trying all of them, which would be a very expensive way of knowledge to the farmer. I have thought it might be of use to publish some receipts that I have had the experience of myself, or have from them that have experienced them, which I think I can depend upon, because they have not been such as have had any advantage by it: which, though they are but a small number yet if by the communicating of them I can, for the publick good, persuade others that they have any experienced receipts to communicate them to the publisher hereof, that they may be here inserted, it will, I think, be a work that will be of great advantage not only to the farmer, but even to the professors and practisers of these arts too: and therefore I shall begin with some observations concerning the purging of horses; in doing of which, I shall consider two things: first, the doses, which are to be proportioned according to the size and strength of the horse; and secondly give
some

some directions for the ordering a horse, when he takes a purge.

§ 1. *Of Purging a Horse.*

Take horse-aloes beaten to fine powder, one ounce, two ounces of fresh butter; and add a small quantity of powder of anniseeds for a horse of thirteen hands high.

Take aloes one ounce and a quarter, if a great feeding horse; if not one ounce and half a quarter, with three ounces of butter, and two ounces of anniseeds, for a horse of fourteen hands high.

Take aloes one ounce and a half if a great feeder; if not an ounce and a quarter and half a quarter, and something better: then two ounces of powder of anniseeds, with the same quantity of butter, for a horse of fifteen hands high.

Make these several quantities in to balls of about the bigness of a small wash-ball; and after you have given two of them, give the horse a hornful of strong or small beer, and another horn-full after you have given the rest of the balls, which should be anointed with a little butter.

The day before you purge your horse give him warm water with bran in it, and the next morning fasting give him the purge: ride him a quarter of an hour, bring him, and let him stand two hours without eating; then give him some hay, and an hour after water him with warm water, and an hour after

after that give him scalded bran: do the same at night, and next morning: if he purges ride him out a little; and then bring him in, and give him scalded bran: a while after some warm water, and ride him out again while he purges; then bring him in, and give him scalded bran: a while after some more warm water, and ride him out again while he purges; then bring him in, and give him scalded bran. Thus you make it work more or less as you please, by repeating the giving of him water and riding. Over-night give him very little hay; for it is best to take physick on an empty stomach.

Note, that if your horse is newly taken up from grass, great care must be taken of him, and he must stand in the house at least a week or ten days before you purge him; and be sure to give such a horse scalded bran, as is before directed. I have known several horses killed for want of observing this rule.

§. 2. *Another Purge.*

Take aloes succotrine an ounce, treacle an ounce, venice turpentine an ounce, fena beaten an ounce, honey half a pound: mingle these together in a pint of white-wine or sack, and give it lukewarm for a horse of fourteen hands.

§. 3. *Another Purge.*

Take aloes an ounce, jalap, cream of
B tartar,

tartar, and fena, of each a drachm and a half, if the horse be fourteen hands, (if fifteen hands, add half a drachm more of each) of anniseeds half an ounce : make it up with a little butter into balls as big as a walnut.

§. 4. *To purge Grease, for a middle-sized Horse.*(†)

Take fresh butter four ounces, castile soap two ounces, hempseed in powder two spoonfuls, sugar-candy an ounce : make it into balls, and give it, riding him after it, and let him have his water warm'd the first time you water him.

§. 5. *If a Purge work too much, how to stop it.*

Take bole-armoniack two ounces, a bit of whiting as big as a pullet's egg ; beat it fine and boil it in three pints of beer, with two or three slices of brown bread in it, and sweeten it with sugar.

The best time to bleed, if you design purging of a horse, is about ten days after his purging.

§. 6. *For a foundred Horse.*

Take an egg, break it, and put it into a horse's foot, and keep it in by putting a piece of leather over it, which you may fasten with splints put across under the shoe : let him stand so all night, or twenty four hours, and it will for a day or two, as I am told from very good hands, make him go easy, and take away the pain.

For

For *Snrbating*, which is the beating of the horse's hoof against the ground; use the same medicine as above, or some fresh butter.

§. 7. *For Coughs or Colds.*

Take a quart of ale, half an ounce of diapente, half an ounce of bay-berries bruised small, grains of paradise pounded an ounce, horse-spice two ounces; let it boil, and no more, adding to it two spoonfuls of sallad-oil, and two of honey.

When you give any of these opening drinks, give it to the horse in the morning fasting, and ride him half an hour after it, and tye him up three hours to the rack; after which give him a mash and warm water at night, and next day in the morning. If he goes to grass, take him up a night or two before-hand, and let him stand in two nights after the taking of it; and when you turn him out, let it be in a warm day, taking him up two or three nights before.

§. 8. *For an Old Cold.*

Take a handful of mallows, four ounces of blue currants, half an ounce of manna, one ounce of alum, boil them in two quarts of strong beer till it comes to one quart: strain it, and put to it four ounces of honey, giving it to the horse next morning warm.

§. 9. *To heal the Lungs.*

Take one ounce of anniseeds, one ounce
of

of turmerick, one ounce of liquorish, one ounce of elecampane, half an ounce of diapente, and one pennyworth of sweet oil, and as much treacle, mix it with a quart of new wort.

§. 10. *A comfortable Drink.*

Take one dram of cochineal, two penny worth of mithridate, as much venice-treacle, and give it in half a pint of sack mixed.

§. 11. *To cool the Liver.*

Take a pint of milk, a pennyworth of honey, and as much sweet oil.

§. 12. *For the rising of the Lights.*

Take four ounces of turmerick in a quart of small beer.

§. 13. *For the Mange.*

Take flower of brimstone, a little oil of turpentine, a little sweet oil, and rub it well in.

§. 14. *For a sore Heel.*

Take two quarts of chamber-lye, one quart of ox gall, one ounce of roman vitriol, a quarter of a pound of green coperas, and boil all together ; but if 'tis for a farcy horse, take vinegar instead of chamber-lye.

§. 15. *To dry a sore Heel.*

Take half a pound of roch alum, as much green coperas, one ounce of white coperas, and boil all together a little, in three pints of running water.

§. 16. *For an ordinary Cold.*

Take a small piece of rag dipt in tar mix'd

mix'd with a little honey, and tye it about his bit; and ride him upon it, and set him up warm.

§. 17. *For a Grass Cold.*

Take up your horse early in the morning, give him a pint of ale lukewarm; dissolve in it half an ounce of the juice of liquorice, ride him half an hour softly, so as not to heat him at all, and turn him out presently.

§. 18. *Balls for a Cold, Consumption, or any inward Distemper.*

Take wheat-meal six pounds, anniseeds two ounces, cummin-seeds six drams, carthamus one dram and a half, fenugreek-seeds one ounce and two drams, brimstone one ounce and a half, liquorice six ounces, elecampane three ounces, bay-berries and juniper-berries of each an ounce and a half, sallad-oil one pint, honey one pint and half, the yolks of six eggs, white-wine four pints. All being finely powder'd, make them into paste, of which make balls as big as a man's fist, and give the horse a ball dissolved in water, morning and evening for fifteen days together: if he refuse it at first, he will quickly desire it if kept to it.

§. 19. *Of the Plague, Gargle, or Murrain in a Horse.*

The murrain is principally caused from a hot, dry season of the year, or rather from some general putrefaction of the air, or

from the infection of other cattle, from cattle smelling to carrion, and licking of the bones; from foul food, as overflown hay, grafs rotted by the long standing of water on it in wet summers; which sort of food is much better to rot on the ground than to be made use of. All these things beget an inflammation of the blood, and cause a swelling in the throat, which in a little time suffocates the cattle.

The signs of this disease are a hanging down of the head, gum at the eyes as big as your finger, going weakly, staggering, the head swelling very big, the breath short, the heart beating, with rattling in the throat: and if you put your hand into his mouth, and find his breath very hot, and his tongue shining, he hath the distemper very strong. If he be taken backward, he will be very stiff, and his guts rumble very much.

If any of your cattle are infected, speedily let both sick and well blood, and drench them. The following receipt I have not had an opportunity to try, but it hath been much recommended to me.

Take diapente a quarter of an ounce, dialthæ, London treacle, mithridate, and rhubarb, of each the quantity of a nut; of saffron a small quantity, wormwood, red sage, of each an handful, and two cloves of garlick: boil all together in two pints of beer, 'till it comes to a pint and a half;
give

give it lukewarm when he is fasting : keep him very warm, and give him a marsh of ground malt ; let him drink warm water for a week, and sometimes have boiled oats. If you can make him sweat he will do well: if one drink will not do, give him another three days after. Half the proportion will do for a cow.

§. 20. *For the Cholick, Belly-ach, or Gripes.*

This proceeds from a fretting, gnawing or swelling of the belly, occasioned from windy humours, or from eating of green corn, or pulse.

It is known by a horse's stretching his neck, legs, or belly, by his lying down and rising often, stamping with his feet: he will rather look full than empty: and if he is cold in the mouth, he is in great danger.

Take half a pint of white-wine, warm it, and put to it six ounces of oil, and fifty drops of spirit of harts-horn; give it to the horse: but if he is full of blood, let him bleed first. If this dose will not do, give him another; into which you may put a hundred drops of the spirit of harts horn.

Take aqua vitæ four ounces, two nutmegs grated, saffron two drams, sallad oil six spoonfuls; give it the horse, ride him after it and set him up warm.

§ 21 *For Grease and swollen Heels.*

If your horse's legs swell in the stable,
give

give him some powder of brimstone in his oats, and it will make his coat lie fine, and do him good for his heels: but if his legs swell much, use the following receipt.

Take soap and hog's lard, of each a like quantity; boil it, and put some turpentine into it a little before it comes off the fire: cut away the hair, and spread a plaister on flax, apply it twice a day till it runs very much, and give him the purge at page 14, where you will find this mark (†). You may likewise rowel him in the chest.

§. 22. *For the Staggers or Stavers.*

The staggers is a giddiness in a horse's brain which turns to madness. It is caused sometimes by corrupt blood or gross tough humours oppressing the brain: and sometimes by turning a horse out to grass before he is cold, and by hard labour. The signs of it are dimness of sight, reeling, and staggering of the horse, who for very pain will beat his head against the wall, and thrust it into the litter, forsake his meat, and have waterish eyes.

First let him bleed in his hinder parts to draw the blood from his head; and about the middle of his forehead cut a slit thro' the skin about half an inch long; upon this clap a plaister of pitch: if it run, the horse will do well again; if not, he will die. Before you lay on the plaister, take a bit of the middle part of the dock-root, and thrust into

into the hole of the slit, between the skin and the bone, upon the upper part of the slit, and lay the plaister on it, which renew as you see occasion.

§. 23. *To cleanse the Blood.*

Take two ounces of antimony, as much flour of brimstone, and give it to the horse in hot bran.

§. 24. *To carry off any Grease or foulness in the Body.*

Take half a pint of sack, two pennyworth of mithridate, one dram of saffron, one pennyworth of sweet oil, and one ounce of elecampane powdered.

§. 25. *For Cracks or sore Heels.*

Take a quarter of a pound of hogs-lard, as much turpentine, half an ounce of verdigrease, a quarter of an ounce of beeswax, and boil all up together.

§. 26. *For the Gripes.*

Take four pennyworth of syrrup of marshmallows, an ounce of oil of turpentine, four spoonfuls of sweet oil; and give it to the horse in a pint of white wine cold.

§. 27. *For a Horse's Heels, that swell in the Stable.*

In summer time ride him into a pond, that has a great many leeches in it, and let them fasten to his legs and kill themselves.

§. 28. *For a Strain or Bruise.*

Take an ounce of Camphire, and put it into half a pint of Spirit of Wine.

§. 29. *For the Glanders.*

Take a pint of childrens chamberlye, two ounces of oil of turpentine, half a pint of white-wine vinegar, four ounces of flower of brimstone, a handful of rue; boil it till it comes to a pint, and give it to the horse fasting, and let him fast after it six hours from meat, and twelve hours from water.

§. 30. *For the Farcy.*

Take three pints of stale beer, one handful of rue, one handful of featherfew, seven handfuls of house-leek, four ounces of alum, two ounces of antimony; stamp the herbs, boil all together till it comes to a quart: Let the horse fast three hours before you give it him, and afterwards six hours from meat, and twelve hours from water.

§. 31. *For a Mallendar.*

Take bay salt, gunpowder and hog's lard, mix it together, and anoint the place once in two or three days; you may add a pennyworth of *Unguentum Apostolorum* to it.

§. 32. *For Sore Eyes.*

Where a skin is growing over the eyes, take an egg, break off the top, take out the yolk, and to the white add a little fine powdered salt, and set the egg on the fire, till it come to a powder, which mix with a little honey, and put into the horse's eye with a feather: but if you find it not sharp enough to eat off the skin; then blow the powder alone in with a quill.

Hob-

Hobgoblin's claws scraped to powder, and put into a quill, and blown into a man's, horse's, or beast's eye, is an extraordinary thing. You may have it at most apothecaries in *Dublin*.

If a great rheum follow the eye, lay round it the defensative plaister, which may be had at any apothecaries. It's good to drive humours from any wound.

§. 33. *For a Blow on the Eye.*

Take some honey, and add a small quantity of powder of ginger unto it, and put it into the horse's eye, or take some hog's lard, oil of roses, oil of elder, of each a like quantity, melt it together and anoint the horse's eye with it.

§. 34. *To draw out a Thorn.*

Take two whites of eggs, add to them some wheat-flour and vinegar, and tie it on with a cloth.

§. 35. *To prevent a Mare's sinking her foal.*

Be sure to take care of her in snowy weather, and keep her where she may have good spring-water to drink, and not drink the melted snow, which is very prejudicial to her.

§. 36. *For Gravel, or a Nail run into a Horse's Foot.*

Search it so as to lay it open, and pour into it tallow boiling hot.

C H A P II.

Of the Bull, Cow, Calf and Ox.

BULLS and cows are very serviceable to the husbandman for work, and for the supply of the family and market. The best breed is reckoned that of * Yorkshire, Derbyshire, Lancashire, Staffordshire, &c. and a good hardy sort for fattening on barren or midling sort of land are your Angleseys and Welsh. The hardiest are the Scotch; but the best sort of cows for the pail, only they are tender and need very good keeping, are the long-legg'd, short-horn'd cow of the Dutch breed, which is to be had in some places of Lincolnshire, but most used in Kent; many of these cows will give two gallons of milk at a meal: But in furnishing yourself with cattle, you ought to consider the goodness of your land, and the use you design your cattle for, as whether for breed, milk, or work.

If for breed, the better your land is, the larger your kine may be; and the cheaper, the more will be your profit: Only observe, that of what kind soever your breed is, that it be the best of the sort, and let your bull be of the same country with your cow, for they reckon a mixed breed not so good.

For the shape of your bull, he should be one of a sharp quick countenance, his forehead

* The counties in Ireland wherein the best breed of horned cattle are, are noted at the end of the book.

head broad and curled, his eyes black and large, his horns long, his neck fleshy, his belly long and large, his hair smooth like velvet, his breast big, his back strait and flat, his buttocks square, his thighs round, his legs strait, and his joints short; this sort of bull is the best for breed, and makes the best oxen for draught.

The cow ought to have a broad forehead, black eyes, great clean horns, her neck long and thin, a large deep belly, thick thighs, round legs, short joints, a white large deep udder, having four teats, and her feet large. As for the size of your cows, as of all other cattle, it must be suited to the goodness of your land, though the largest commonly give the most milk: and whether you design them for breed, fattening or milk; let them be such as come off a worse ground than your own as near as you can. The best time to breed calves is from three years old to twelve.

You ought not to let a cow go to bull before she is three years old; if a cow happens to be with calf before, the calf ought to be put from her, and she must be milk'd for three days after, lest her udders be sore; afterwards forbear milking.

The use of the cow is either for the dairy or breed: the red cow is reckoned to give the best milk, and the black to bring the best calves; but the cow that gives milk
C longest,

longest, is esteem'd the best, both for profit and breeding; and for them to calve in March or April is the best time for the dairy, and therefore they are put to the bull about July.

I shall not mention any thing about the making of butter and cheese, because most good house-wives are acquainted with the way of doing it; only as some lands will make unsound cheese, notwithstanding all the care the good housewife can take, I shall here propose a remedy or two for that inconveniency; which is, if you find any of your cheese begin to be rotten to cut it out, and scrape some chalk into the hole, so as to fill it up; and to keep the chalk from dropping out, spread some butter over it, and it will prevent its growing farther, by drying up the moisture that causes it to corrupt: and to prevent the mites breeding in cheese, rub it over where you see them begin to breed, with oil or oak-ashes, once in three months, and it will kill them.

When a cow is near calving, for about a fortnight or three weeks before, put her into good grass; or if it be in winter, give her hay; and when she hath calved, that day and night keep her in the house, and let a little of the cold be taken off the water which you give her: next day about the middle of the day turn her out if well, and well cleaned, and take her in two or three
nights

nights more, giving her water a little warm every morning before you turn her out.

For calves there are two ways of breeding those that you design to rear; the one is to let them run with the dam all the year, which is the common way used in the cheap breeding countries, which they reckon makes the best cattle; and the other way is to take them from the dams after they have sucked about a fortnight: then they teach them to drink skim milk, which they do but just warm for them, it being very dangerous to give it them too hot. The best time for weaning calves is from January to May. Let your calves have milk for about twelve weeks; only a fortnight before you wean them from milk, let water be mixed with the milk; and after your calf hath drank milk about a month, take some of the finest sweetest hay you have, and put little wisps of it into some cleft sticks, which place so as the calf may easily come at them to learn him to eat; and after Lady-day, when the weather is fair, turn your calves to grass, taking them in a few nights at first, giving them milk and water, and sometimes giving the same to them in a pail in the field, till you find they are able to feed of themselves so as not to desire it: but by no means let your grass be too rank, but short and sweet, that they may get it with some labour. Every body wean their

calves at grass; for if you wean them in the house with hay and water, it is apt to make them big-belly'd, and to rot; and when you have resolved which to keep of the males for bulls, let the others be gelt for oxen, which the sooner you do the better: when they are about ten or twenty days old is the best time and least dangerous.

In Hertfordshire, Essex, and other places near cities, they commonly fat all their calves for the butcher, because they have there a good market for them, and their lands are not so profitable to breed on as in cheaper countries; a good calf there often felling for as much as a good heifer, especially if they are very fat and white, which they take a great deal of care to make so; their way of doing of which is by keeping of them clean, giving them fresh litter every day, which they lay upon their old litter; for they clear out their coops but two or three times in a year, and most commonly at such a time as they have no calves in them; they constantly also let them have a large chalk-stone or two to lick, which they bore a hole through, and hang up by a string in a corner of the coop, which prevents their fouling it with their dung and urine. They also observe to set their coops where they may have as little sun come on them as possible, that they be not made
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close and stifling, and that they stand a yard above the ground, that the urine may run from them : and to make them white, they often let them blood, when they are about a month old, and a little before they kill them ; and because they are often loose, they let them not suck their fill, but instead of it, they sometimes give them chalk scraped into milk, which they pour down with a horn ; also salt and water, and sometimes they cold bath them and give them bole-armoniack and chalk, which they moisten with milk, and make it into balls, and give them ; and if a cow will not let a calf suck her, rub her nose and the calf's with a little brandy.

Of oxen the largest are esteemed the best for draught, or for feeding (where there is land able to bear them) such being the strongest to endure labour. For his shape, it differeth little from that of the bull ; they that are the gentlest are the best for the yolk. In matching of them, let them be as near as you can of one height, spirit and strength, else one will be apt to injure the other ; and you must take care not to put them beyond their ordinary pace, for heating of them puts them into surfeits, and produces all manner of distempers in them.

The time of putting oxen to work is at three years old, at which age, for the first

year work them very gently, especially in hot weather, and feed them with a good deal of hay, which will make them better able to endure their labour, than grass will; the keeping of them in a middle state, neither too fat, nor too lean, is best; they commonly work them till they are about ten or eleven years old, and then sell them; let them always be used gently, for meat and fair words bring them sooner to the yoke than fear or blows: but the best way to rear up young ones, besides gentle usage, is to couple them with an old gentle ox; if they are unruly, let them be tied with a rope and keep them hungry, that they may take meat often out of your hand.

Oxen are much more profitable to keep than horses, there being no loss in them; if they prove either lame or old; an old worked ox fattening as well, and being as good meat as a young one, and then their feed is much cheaper, because they eat no oats; and so is their harness and shoes: they are likewise not so subject to diseases as horses; but you must have a good bite of grass and good hay for them in winter; only they are not so good for draught where your ways are good, and that you have occasion to cart much; but for winter plowing where you have a heavy soil, they will do as much as horses, especially a sort of a long legged nimble ox, which will, of any work,
do

do almost as much as a horse: where any person can keep two teams, let it be in what place it will, I should choose to have one of my teams of oxen. The yoking of oxen together by the necks and breast, is much better than the doing of it by the horns; and where a man keeps an ox-team it is necessary that he should rear two oxen and two cow-calves every year to uphold his stock; for it is better for a farmer as to all necessary things, that he be a feller than buyer. Chalky land batters and spoils oxens feet more than any other soil.

Cattle are brought in to fat at spring, and about Michaelmas; those you buy in at spring, will be fat in July, August or September, according as they are forward, and you have keeping for them; and those that you buy in August, September or October, must be either to sell in winter or in spring, and must be forward in flesh to be improved the beginning of winter, and only kept up in flesh during the hard time of winter, either with hay or turnips, to be fit for a good market whenever it offers; or they must be young lean cattle, that may by their growth pay for their wintering, and so be ready to fat near summer. Some upon ordinary land buy young small heifers, which, if they prove with calf, they sell in spring with a calf by their side for the dairy; and those that are not with calf, they fat; all which ways turn

to good account, according as the prices fall out; but most commonly all meat either at christmas or at spring, is one third part dearer than in summer: because all have not the conveniency of either hay or turnips to fat cattle with in winter; and it is but in few places, especially near a city, (which is the chief market for cattle) that hay can be afforded to fat them with; for they reckon an ox that cost about six pound, will need about two load of hay to keep him up all winter.

For the wintering of cattle, about September you must turn them out that you design to keep up for a winter or a spring market, and your cows, that give milk into your rowens, till snow or a hard frost comes, and they will need no fodder; but if snow or frost comes, you must give hay to your cows near calving, or those that have lately calved, or that give a great deal of milk, and to your fatting cattle, and that every morning and evening, which you must proportion according to the quantity of rowen or tore that you have upon the ground; the more tore you have, the less quantity of hay will do, and even the four grass that your cattle would not eat before, when the frost hath taken it, will be good sweet food for them, and what they will eat with pleasure, if it is not covered with snow that they cannot come at it.

it. But for your lean cattle, and those that give but a little milk, straw will do well enough to fodder them with, only you must observe to give the barley-straw first, and the oat-straw last, except you value their milk; if you do, give to such cows your oat-straw, if the quantity of milk they give doth not deserve hay, or that hay is scarce with you; for barley-straw will quite dry up that milk that they have, tho' it is good food for dry dattle; but if your hay fail you, to those cows which you design to continue the milk of, give malt-dust, upon which pour scalding-hot water, which will cause it to swell mightily; let it stand till near cold, and give it to the cow like a mash, and it will cause her to give a great deal of milk, though she eat straw with it. A bushel that costs about three-pence, will serve a cow a week. But about cities they give to their cows in winter, grains, (of which they have plenty) which makes them give a great deal of milk, but it is apt to rot them if given in too great quantities, and for too long a time: when your store is quite eaten up, which it will commonly be about February, you must house your milch cows, that you give hay to in your cow-house all night, and your other cattle in your yard; for which use you should have two yards; one for your cattle which eat hay, and another for your cattle which

which eat straw, with racks and other conveniencies to fodder them in; observing that what you give them, to do it often, and not to give them too much at a time; because when they have blown on it, they will not eat it; both your yards ought to be well shelter'd, and made as dry as you can, and a good deal of straw given them to lie dry and warm in, which is a very great advantage to them, and will much increase the quantity of your dung.

As to the buying of fat cattle, milch-cows or lean cattle, experience and the advice of those that understand them, is the best instructor.

For the feeding of land you may do it with beasts and horses together, or with beasts first, and horses afterwards: and after both put in sheep: but let not your grass be too rank before you feed it; for if you do, it will be sour, and your cattle will not eat it, except only the tops, and so the other part will lie untouch'd, and rot upon the ground, for no beast will eat sour grass till the frost hath taken it. Observe also where you have inclosures, to be often changing your cattle from one pasture to another; for by that means you will give your land an opportunity of getting a fresh head, fresh grass being a mighty help to the feeding of cattle.

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As to the distempers of these sorts of cattle, take these following receipts.

§ 1. *For the Garget, Plague or Murrain in Bulls, Cows or Oxen.*

Most authors confound these distempers together; but whether they be the same, and only differ in the degrees of the malignity, I cannot determine, but commonly the same remedies are proposed for both, tho' the garget sometimes appears in the head, and sometimes in the maw, and sometimes in the hinder parts. When it lies in the head, it is known by the swelling of the eye-lids, blisters on the tongue, &c. When in the maw, by drooping and heaviness, panting of the heart, hanging down of the head, costiveness of the body, &c. And when behind he will be very stiff, and his guts rumble, &c.

If blisters be on the tongue, take them off with a sharp knife, and slit the tongue underneath an inch long, but not deep, and an infectious water will come out, which, wash with vinegar. If it lie in the maw, or behind, let blood in the neck vein; and for either of these distempers give the following drink, or that which is mentioned hereafter for the murrain, which hath been recommended much to me by those that have often experienced them.

§. 2. *For the Gargle.*

Take polypody of the oak and burdock-leaves,

leaves, of each a handful; for want of the leaves take the same quantity of the roots, shred them small, and put them into a pint of milk, and boil them; let it cool, strain it, and give it to the cow.

For the head-gargle, give powder of senugreek, turmerick, liquorice, anniseeds, of each an ounce; of long pepper half an ounce; beat all to powder; boil it in a quart of ale, giving it blood-warm.

§. 3. *For the Murrain.*

For the signs of it.

For the cure.

Take unslacked lime, coriander-feed, marjoram and garlick, beat all to powder, and sprinkle it on coals, letting the fume of it go up the beasts nostrils; it will bring away a great deal of the infectious humour.

Take plantain, rue, southernwood, shepherds-purse, smallage, coleworths, of each a handful; bruise them, and with a handful of hens-dung lay them in steep in a pint of old wash eight hours; strain the liquor, and add a quart of ale to it; put it on the fire, consuming it to one half, and put into it an ounce of treacle, a spoonful of juice of garlick, half an ounce of anniseeds, and the like quantity of liquorice, and give it lukewarm.

§. 4. *For the Worm in the Tail.*

This is a distemper that breeds in the end of cattles tails, like unto an eating canker,

canker, which will cause them to grow lean, and so weak in their back, that they cannot rise when down, and sometimes will make their teeth loose. You may know them by the hair being eaten off where the worm lies, and you may by feeling with your fingers find some of the joints eaten asunder.

To cure it, take foot, rue stamped, salt and butter, and mix them well together, and apply it to the tail, having first slit the inside of it about two or three inches long, just above where the joint fails, and rub her teeth with juice of oranges, or juice of scurvy-grass; you may likewise give her the following drink for inward distempers.

§. 5. *For any inward Disease in Cattle.*

If you cannot find out what the disease is, take a quart of ale, wormwood, rue and rosemary; of each a handful; bruise it in a mortar, boil it, and strain it; adding to it two spoonfuls of the juice of garlick, as much of the juice of houghleek, and as much London-treacle; mix all well together, and give it luke-warm.

To know if any distemper is growing upon them, view the top of their noses in a morning, and if pearls like drops of dew hang upon them, they are in health; but if they are hot, dry and scurfy, some distemper is beginning to grow.

§. 6. *For any Imposthume, Boil or Swelling.*

Take lilly-roots, boil them till they are

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a pap in milk, and apply it hot to the fore. When the fore comes to be soft, you may open it with a hot iron, if you find need, and heal it with tar, turpentine and oil mixed together, adding a little hog's-lard to it when boiling-hot.

§. 7. *To kill Worms.*

Chop favin small, and mix it with sweet butter, roll it into balls, and give it for two or three days; afterwards give them about about a pint of sweet-wort, in which dissolve a little black soap, and it will bring them away; keep them warm after it, giving them warm water, and without meat three hours.

§. 8. *Of Bleeding a Cow.*

Except it be an extraordinary case, never take above a pint of blood from a milch-cow at a time.

§. 9. *For a Looseness or Bloody-Flux.*

Take some flocs, boil them in a little water, and add some powdered chalk, and a little quantity of whiting to it, and put it when cold into the water which the cows drink.

C H A P. III.

Of Sheep.

SHEEP are not only a very useful creature, but very profitable too, and will be kept and fatted upon much worse land than

than any of the former stock; and therefore they are by some preferred before any other sort of cattle. The best breed for fine wool is Hereford and Worcestershire; but they are a small black faced sheep that bear but a little burthen. Warwick, Leicester, Buckingham and Northamptonshire, bear a large boned sheep of the best shape and deepest staple: Lincolnshire in the salt marshes breeds the largest sheep, but not the best wool, tho' they are lately much amended in their breed. Yorkshire, and so northwards, bear sheep of big bone, but their wool is rough and hairy. Wales bears a hardy small sheep that hath the worst wool, tho' the best tasted flesh. Sheep, as well as other cattle, should be bought from a worse land to bring on to a better, and see that they be big boned, and have a soft greasy well curled close wool, for such sheep bear the best burthen, are always most esteemed by the butcher.

For the choice of sheep for breed, see that the ram be young, and that his skin be of the same colour with his wool; because the lambs will be of the same colour with the skin; that he be of a large long body, his forehead broad, round, and well rising, his eyes chearful and large, his nostrils straight and short, &c. The polled sheep (that is sheep without horns) are reckoned the best breeders, because the ewes

yea the polled lamb with the least danger, and because so much less of the nourishment goes into the horns. An ewe should have her neck large and upright, bending like a horse's, her back broad, buttocks round, thick tail, small legs but short, clean and nimble; the wool thick and deep, covering her all over: and to know whether they are sound or not, see that none of the wool be wanting, that their gums be red, teeth white and even, the brisket-skin red, the eye-strings ruddy, the felt loose, the wool fast, the breath sweet, and the feet not hot: for if they are rotten, the eyes are pale and dark, the gums white, the wool easy to come off, the teeth yellow and foul, and when dead you may see the belly full of water, the liver putrified, the fat yellow, and the flesh moist and waterish; as for their age two years old is the best age to have sheep at: and for them to take ram at, where they prove with lamb before; you ought to sell the lamb as soon as 'tis convenient, which is commonly about October; because sucking of the lamb too long will weaken them too much. They will bear good lambs till they are seven years old. In order to know which, when a sheep is one shear, as they call it, they will have two broad teeth before; when two shear, four; when three shear, six; when

when four shear eight: after that their mouths will begin to break.

For land to breed sheep on, it is observed, that fat pasture breeds strait, tall sheep; and hills and short pastures breeds square ones, woods and mountains small and slender sheep; but the best for all sheep are new plowed up land, and all dry grounds; and so on the contrary, all wet moist lands are bad, especially such as are overflowed, and soiled with sand and dirt, except the salt marshes, the saltness of which makes amends for their moisture, any thing of salt by reason of its drying quality, being of great advantage to sheep.

As for the time of putting the rams to the ewes, you must consider at what time of the spring your grass will be fit to maintain them and their lambs, and whether you have turnips to do it with till your grass comes: for many times both ewes and lambs are killed for want of keeping; or the lambs very often stunted with their growth, which if once they get will be a very great hindrance to them, and a long time before they will recover it; and therefore as an ewe goes twenty weeks with lamb, you may easily calculate the time for her to take ram in: but the best time for them to yeau is in April, except where you have very forward grass, or turnips, or that your sheep or field-sheep, where you have not

inclosures to keep them: then it will be necessary to have them yean in January or February, that the lambs may be strong before May-day to follow the ewes over the fallows and water-furrows: but then lambs that come so early must have a great deal of care taken of them, and so must all other lambs at their first falling, else while they are weak, the crows and magpies will be apt to pick out their eyes: if you save the grafs and weeds that grow in the lands that you design to fallow in the winter, that is from Christmas, and turn your ewes and lambs into them in March, if you have a mild winter, it will be a great help to them.

If you turn sheep into wheat or rye to feed, let it not be too rank before you put them into it, lest it make them scowr.

Your ewes that are big, and other cattle, should be kept but bare; because it is very dangerous for them to be fat at the time of bringing forth her young, except only for about a fortnight or three weeks before, then they may be pretty well kept to get them a little into heart.

As to the weaning of lambs in some places they never sever the lambs from their dams, especially in the best pasture where the ram goes constantly with the ewes; because the ewe when she goes to ram again, will go dry, and wean the lamb herself; and likewise in unsound pasture they reckon
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it the best for lambs to run with the ewes, because they seldom rot while they suck, except they want suck; and in such cases it is better to sell them to the butchers; but they that have sound pastures may wean them at sixteen or eighteen weeks old, if they find it inconvenient to let them run longer, but if you suspect a rot among your sheep, Mr. Moor says, that if you wean your lambs about June or earlier, it has been found one of the best remedies, to preserve both sheep and lambs.

About Michaelmas you should separate the male from the female, and having chosen out the best, those which you design for rams put by themselves, the rest geld, that are not gelt already: because the best time of doing it is while they are very young.

The best time of shearing sheep is about the middle or latter end of June; because it is good for them to sweat a little in their wool before you cut it; and they must be very well washed, which is a great help to the price of your wool. Let them go two or three days after in clean dry ground before they be shorn: in doing of which the shearer must take care not to hurt them with the point of the shears, nor yet to cut their skins, because of the flies; and see that the wool be well wound up. Some shear their lambs too, which they do close behind, but very little before, especially the

the first year: but before they are shorn great care ought to be taken to tag them, as they call it, which is to clip away the wool of their tails, and behind, that the dung may not hang on it, which else will occasion them to be sore, and the flies to blow them, and fill them with maggots. Wool is commonly sold by the stone which is 14 *l.* or the tod which is 28 *l.* or by the pack, which is 26 stone or 364 pound.

In Gloucestershire they house their sheep every night, and litter them with clean straw, which affords a great advantage to their land by the manure, and they say makes their wool very fine.

In Middlesex and round London they buy Way-hill sheep, which are a sort of sheep bred in Hampshire, Wiltshire, &c. that lamb very early, commonly before Christmas; these lambs they keep in little pens in a house, and bring the ewes two or three times a day to them to suckle them, which quickly makes the lambs fat even in the hardest weather, especially if they have turnips to give the ewes; because the lambs are sheltered, and do not ramble about in extremity of hard weather. Where they have not turneps, some give to their ewes the finest hay, and bran, and oats and ivy.

Some make a great improvement of their lands by folding of sheep upon them, which folds they make with hurdles so as to re-
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move them from one place to another; and so when the sheep have dunged one place, they new place the folds, and dung another, by putting the sheep into them every night, which they only do in summer time, as near as they can in good weather, because folding of them is apt to make them have the rot; and care should be taken when they are let out in a morning, not to do it before the sun is risen, and then they should be drove to a good feeding-place; for being hungry they will eat any thing that comes next; the not observing of which, many times is a great prejudice to them, especially in moist ill ground; but many reckon all folding of sheep to be very bad for them, particularly if storms or ill weather happen, and therefore they rather chuse to stick stakes sloping in the ground, to which the sheep will come and rub themselves, and so dung and urine on those places where they stick them.

Of the Diseases of Sheep.

The great inconveniency which attends sheep, is their being subject to the rot; which is a hard thing to prevent, if the year prove very wet, especially in May and June, except it be in salt marshes or in broomy lands, broom being one of the best preservatives against that distemper of any thing. I have known sheep cured of the rot, when they have not been far gone with

with it, only by being put into broomlands, Scurvy-grass, parsley, mustard, thyme, and all other sorts of hot herbs are good for the prevention of it. Some propose to give sheep once a month or oftener, half a handful of bay-salt, which may be of some service to them: but as the rot, red-water, and most of the distempers that sheep are subject to, proceed from too much moisture of the land they feed on, and the season of the year; so I should think that dry food at such times, and the keeping of them on dry land in wet seasons, and to give them fine hay, oats, bran, &c. (amongst which some salt might be mixed) might be the best and properest food for them to prevent these distempers. Sheep are often blind by means of their foulness of blood; to prevent which 'tis good to cut their tails, and so to empty them of their blood.

C H A P. IV.

Of Goats.

GOATS are of advantage to be kept in rocky, barren places, where other cattle cannot get a livelihood: they will climb the highest craggy rocks to feed upon briars, bushes, heath, and other wood: and tho' they will feed on plain pasture, yet their chief delight is in browsing upon trees; and

and therefore great care ought to be taken to keep them from all sorts of valuable plantations; the chief profit of them is their milk, which is esteemed the greatest nourisher of all liquid things on which we feed (except woman's milk) and the most comfortable to the stomach: many mix it with other milk in barren countries, where they cannot keep many cows to make cheese with, for which use it doth very well: their kids also are very good meat, which the best sort of them commonly produce twice a year, and two or three of them at a time; some outlandish sorts of them more. Some shear their hair to make ropes with, which will lie a long time in water without rotting, and some make particular sorts of garments of it.

The goat ought to have a large body, well haired, great legs, upright joints, not bending, a neck plain and short, head small and slender, large horns and bending, a big eye, a long beard: and then she should have large teats, a big udder, hanging down ears, and no horns, at least very small ones.

For the ordering of them they should be kept in flocks or herds, that are used and associated together; or each party will be apt to straggle from the other. They should have good shelter both from the heat in summer, and cold in winter: for
they

they can neither endure the extremities of the one or the other, especially the shees which are with kid. The best time for the male and female to go together, is about December. If you house them in winter, let them have no litter to lie on, because it is too hot for them; but let the floor be paved, that they may be kept sweet and cleanly: for they cannot endure ill favours. As for the kids they are to be ordered in all things as they order lambs.

If goats are suffered to go and chuse their own food, they are such good physicians to themselves that they are seldom troubled with any inward distempers; only the unnatural excess of their lust makes them soon grow old, and so quickly become past use and profit. They are reckoned very good to lie amongst horses; the scent of them, as they say, being of great advantage to prevent the horses falling into distempers.

C H A P. V.

Of Swine.

SWINE are very advantageous to the countryman, not only for their great increase, but also because they feed upon what would otherwise be of no use or advantage, but would be flung away; as whey, washing of the tubs, grounds of drink, dish-water,

water, grains, &c. And their flesh being best salted or kept in pickle may be eat in the spring when other meat is at the dearest, besides the help it affords to the taking off of garden commodities, and the variety of dishes of the offal. They are indeed very greedy, and given much to root up ground, and to break fences; and therefore the most care must be taken of them to keep them well rung and well yoked.

The largest swine, and the greatest numbers for any particular places are bred in Leicestershire, and some parts of Northamptonshire, and in the clay countries thereabouts, which, I suppose, proceeds from the great quantities of beans and pease sowed in those parts.

The wild-kind are not so large as these sorts, but are much hardier and better meat.

In the choice of swine, chuse such to breed of as are of long large bodies, deep sided and bellied, that have a short nose, thick thighs, short legs, high claws, thick neck, a short strong groin, and a thick chine well set with strong bristles.

To have too many sows in one yard is not good, for their increase is so great, that they will for want of food, not only devour whatever comes in their way, but eat one another: for a sow will bring forth pigs three times a year, that is at the end of

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every sixteen weeks: and I have heard of a sow that has had twenty pigs at a litter: it is common for them to have thirteen or fourteen; but the sow can rear no more than she hath teats to suckle them with; the rest must be flung away, or put to other sows. Some esteem them the best pigs to keep for store that suck the foremost teats; but for what reason I cannot tell. If the sow miss the time of going to boar that she in course have done, give her to eat some oats parched in a pan in her wash, or the small end of the runnet-bag, and it will cause her quickly to go to boar. The pigs which you rear after you have chosen out the best for boars and sows, the males must be gelt, and the sows spay'd; the spay'd gelt, as they call them, they esteem the most profitable, because of the great quantity of fat that they have upon their inwards more than the hogs. Young shoots, which are swines of about three quarters of a year old are best for pork, and those of a year or a year and a half old for bacon. The best age for a sow to bring forth pigs is from one year to seven years old; and the best age for the boar, is from two years to five years old, at which time 'tis best to geld him, or sell him for brawn; the best pigs to rear are those which are pigged in the spring. The best way of taking care of swine is to feed them so as to keep them

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in a good midling plight, 'till you design to fat them : for if you keep them too fat ; it will endanger their health, and too lean will make them too ravenous. 'Tis good to give them such swill as you have every morning and evening to make them come home to their coats ; the rest of the day let them graze, and get such food as they can ; only when corn is upon the ground, you must be careful to keep them within bounds. Moist sedgey grounds are good for them, the roots of which they will eat ; and all sorts of haws, hips, sloes, crabs, acorns, mast, chesnut, &c. with which if you have plenty enough to fat them, their flesh will eat much better, and sweeter than if fatted in a sty : only some say their fat will not be so solid, nor so profitable : and therefore they commonly shut them up for a week or ten days, and feed them with dry pease or corn, to make their fat firm. But 'tis a mistake, I have killed hogs fatted with acorns, whose fat was as solid as any fatted with pease. In the fatting of hogs in styes, they observe to give them meat often, but little at a time, that it may be always fresh ; and likewise to give them as much water as they will drink, and to keep them very clean, which will much help their fatting, and mend the taste of their flesh. But where the husbandman lives remote from wood, or the year doth not hit for acorns,

or mast, they commonly fat them altogether in styes with pease, if cheap; if dear, with the meal of barley, rye, or offal corn, according as they are cheapest, which they mix with water, whey or skimmed-milk, with which they feed them till fat; which will commonly be in about a month's time, and then they feed them with pease, only a little before they kill them.

Observe, that every sty have a yard well paved with stone, if you can, for the hog to go out and ease himself in, that he may keep his lodging the cleaner, and air himself.

In Leicestershire they have a very easy way of fattening great numbers of swine, which they do, by slacking up their pease and beans, which they shape like the form of a small cottage. This they set near some running brook, and hedge a yard in round about it, taking some part of the stream into the yard for the hogs to drink at, into which they turn such a number of hogs as they think their pease or beans will fat, where they let them live till their provision is consumed, cutting the rick down, and giving it to them as they can eat it. By this way they fat very great numbers which they dispose of at London, to the navy, for sea.

Scycamore leaves beaten down while green,

green, and given to hogs will fat them very quickly.

Acorns, when given to hogs, or other cattle, some say should be cut in pieces, or broken, because they are else apt to sprout or grow in their bellies. Some propose to macerate them in water first, to extract their malignity, without which preparation they are esteemed often prejudicial to cattle.

Grains may be kept a great while if buried in the ground, even in summer time, but the hole you put them in must be plaistered on all sides, or if you take grains, and lay a layer of them, and a layer of hops upon them, and so a layer of grains, &c. in a tub they will keep a long time, and if given to a hidebound or unthrifty horse, they will recover him.

A certain author observes that the large Hertfordshire breed, or as some will have it Lincolnshire breed, are the quickest growers, and grow to the largest size of any we know of with us.

But this kind must have great store of food, when it is young; for unless it is continually served with plenty of wash in the younger part of its life, it will be stunted and never come to good.

But upon turning them into the fields or any grass, by reason of its voracious appetite, they will certainly get the distemper

call'd the gargut (if care be not taken to restrain them) which will destroy them in a few days; *See gargut, &c.* towards the end of this chapter.

There are another sort of swine famous in England and Ireland, which some call the Bantam breed, and others the Guinea breed; and others the African hog; and some again the black French hog; but the more common name is the black breed.

This is by some accounted the most profitable for breeding of pigs, for sweetness of flesh and for being easily raised and fattened; they being the most hardy of all others, and will make the best shift for its food of any hog we know.

But the sort of swine that is most frequent and that requires the least care, and generally bring the most profit are the cross strain, bred between the two foregoing sorts.

These are the most coveted, because they will easily shift for themselves, are good breeders, are more hardy than the large sort, and when they are put up grow fat the sooner.

And besides their flesh is finer and more delicate than that of the large sort, which is generally coarse and loose.

There is also another sort of the black kind; but does not cleave or part the hoof, or as one may say the whole hoofed.

But

But the flesh of those is not altogether so pleasant as that of the black breed before mentioned; neither are they inclined naturally to be fat as the other black breed are.

The Hertfordshire and Lincolnshire which are both the same; have long and large bodies, long legs, long and thick necks, and carry long bristles; but this sort is not so easily fattened as the cross strain, nor will they pay the expence of fattening so well in proportion.

The black or bantam breed have short heads and necks, are deep sided and bellied, even reaching to the ground; they have thick gammons and short legs, are short snouted, thick chine'd, and are generally pretty strong, these are seldom above eight hands high.

The cross strain between these two, are of a middle size and not of any constant colour; sometimes inclining to the white of the large sort, at other times black, and sometimes mottled or spotted, and now and then grisled between white and black, being of a colour inclining to blue.

Some of these have been near ten hands high. These in their make, are generally more like the black breed than the large kind, and are mostly produced between a boar of the white sort and a sow of the black breed.



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It is to be objected, that the boars for the most part, are much smaller in their bodies than the sows : and it is probably for this reason that the boars of the white kind are put to serve the sows of the black kind, the coupling being more easily effected.

The other sort before-mentioned is likewise black, long bodied, short necked, long snouted, broad backed and something longer jointed every way than the former hogs of the cross strain.

These are not so plentiful breeders as the black breed, seldom bringing more than eight or nine at a farrowing, whereas the black breed bring sometimes fifteen, sixteen or seventeen at time.

Neither are the large Hertfordshire swine so plentiful breeders as the black breed ; they bringing not above eight or nine at a farrowing.

There is one thing to be remarked in relation to the whole footed sort of swine, as to their coupling with the cloven footed.

Some who have had a whole footed sow served by a boar of the cloven footed kind, tell us, that of the litter of the pigs, some of them were whole footed, and some cloven footed, some had two whole and two cloven, and another with three cloven feet and one whole foot.

From these observations it seems reasonable to suppose that as far as they concern the

the stature and bulk of swine, that the larger sort of hogs should only be cultivated in such countries or farms, where there is the greatest store or plenty of food for fattening them for bacon; as for example, in such countries as abound with masts of several kinds, and afford great quantities of pease. Altho' barley meal, or sodden barley will do.

As for the middling and bad breeds, their pigs may be reared on stubbles which will make them thrive and fit for killing for porkers at a small expence.

Those pigs that are reared on stubble, are called shock-pigs, and as they do not require so much food as the larger kind, so they will find nourishment sufficient in the stubbles (within a small matter) to feed them fit for the butcher; and by this feeding which may be accounted a short nourishment, their flesh will be shorter and better tasted than those hogs which feed on gross food.

Just as the sheep that feed on short grass, yield better mutton, than those that feed on rich or high pasture.

So likewise rabbits that feed upon short pasturage, are always fatter in proportion, and of a much finer and sweeter flesh, tho' they are smaller than such as have plenty of food.

As to the flesh of hogs, we do not only find that one sort is more agreeable than another to the palate on account of food; but that the flesh is also more or less firm as the diet of the hog happens to be, and on that depends the keeping of the flesh either when it is pickled or dried.

The astringency in acorns upon which swine feed in many places, serves to give their flesh a firmness, which in drying or pickling, will preserve the fat or any part from turning rusty.

This is the case of such hogs as are fed in the countries where acorns are plentiful, and instead of these horse-beans may be used as their fattening food.

Chestnuts are likewise very good and fattening for hogs, and some have found the way of feeding hogs with horse-chestnuts. They boil them in a lye till they are tender, and then the coverings will slip off. By this boiling the bitterness which abounds in this sort of chestnut will be taken away, and so they will be fitted for food for the hogs.

Some pretend to tell us that we have a wild kind of hog, which probably we had before we took the benefit of inclosing lands; for when all grounds were open and free, cattle took the liberty of running where they pleased, and a single mark was the only thing by which a man could

could distinguish his own cattle from those of his neighbours.

It is now much the same case in Westphalia, where the swine run at random: and these may be properly said to be in some sense wild; tho' not so wild as these in great forests of France and Germany, or about Italy; for these in Westphalia are somewhat more familiar, by being partly under the direction of a swine-herd, and therefore do not fly from, or avoid the company of mankind, as the wilder hogs of the woods and forests do.

The food of these, both the one and the other are the same, viz. acorns and other kinds of masts, and other wild fruits, and upon truffles, roots of herbs, &c.

These certainly have the most delicate tasted flesh that one can desire; but are never so fat as our hogs bred at home.

The best places for breeding a number of swine are such as abound in woods; the best countries for feeding them are where horse-beans and pease are plentifully cultivated; so in like manner at farms where there are large dairies, it is necessary that there should be as many hogs as cows; for the offals of the dairy, as skimmed or flet milk, butter-milk, whey, and the washings of the dairy will afford them sufficient to nourish them, and make them profitable.

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In the choice of fows in breeding, those are accounted the best for bearing strong pigs, that have not more than twelve teats or paps; nay ten is a good reasonable number: for though there have been some fows that have brought eighteen or twenty pigs at a fare; yet by so many, where there are even teats or paps enough for them, the sow is greatly weakened and the pigs not half nourished; and besides the sow will be a much longer time before she will take the boar again.

Some are of the opinion that every sow has so many paps as she brings pigs at a fare, and that every pig knows its own pap, and sucks that and no other; and again that if you take away any pig, the pap that the pig belonged to that has been taken away has dried up; which whether so or not I shall not determine; but it has been observed that a sow that has brought ten pigs, has at that time, had ten apparent paps; besides six or seven blind paps, as they are call'd; because they were not prominent as the others or of any use: but in another fare of pigs which a sow brought a year after, of about fifteen in number, she had as many teats or paps as pigs.

However, this is certain, that the smaller number of pigs a sow has, the better nourished, and the larger they will be when they are grown.

It

It is a common saying, the worst housewife will rear the best pigs; this saying probably arises from this supposition, that swine are creatures that delight in dirt and filth. But we have good reason to judge that swine are cleanly creatures in their disposition.

For notwithstanding they frequently lie down in miry places and bogs and the like; it is in the first place to cool their bodies, there scarce being any animal of a hotter constitution than swine.

And again as swine are often troubled with ticks or lice, so the rolling or covering their bodies with dirt; as soon as it is dry, and they can rub it off, frees them of that vermin.

Another proof of their cleanly disposition is, that they will not fatten if they are penn'd up in so close a sty, that they are obliged to lie down in their own dung.

Therefore all styes that are made for these animals, should have open courts before them, for the better conveniency of their airing themselves, and for the more commodious giving them clean straw, or litter to lie upon.

One instance of the heat of their bodies is, that they will fatten much better and sooner, in cool and moist woods and shady places, where little food can be seen, than in hot open exposures, where they have

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plenty

plenty of food given them, without the trouble of seeking for it.

And besides it is observable whatever food or diet is cooling to their bodies, is profitable for them ; and on the contrary, all diet of a hot nature, is disagreeable to their natural disposition ; and this also renders it necessary that they should always have free access to water.

One boar may be allowed to two sows, and not more, if you would have the breed strong.

Sows for breeding should be of different ages, that there may be sucking pigs for the market all the year.

A sow from the time she is served by the boar, to the delivery of her fare of pigs, goes about sixteen or seventeen weeks ; and for the most part farrowing in the seventeenth week ; and if they are kept clean and well fed, will bring three fares of pigs in a year.

A boar ought to be a year old before he is suffered to couple, tho' they are capable of serving a sow at half a year old.

Nor should a sow be younger than a year old when she is suffered to take boar ; and then she will breed seven years after, except she happens to have too great a number of pigs at a fare, as that is, so will she be fruitful a longer time. A judgment may be made how many she will bring at each fare

fare afterwards, or near the matter, by the number of pigs, she brings at the first time of farrowing.

Although a sow will bring three farrows of pigs in a year, yet it will not be necessary nor convenient to suffer them at every breaming to take boar; because if they bring a great number of pigs, three farrowings in a year will weaken them too much; and consequently the pigs themselves would be weaker, and require a greater and larger share of nourishment to bring them forward than others that are strong at their first farrowing, or shall then have the benefit of being suckled by a dam in full strength.

Some farmers are of opinion, that the best bearing time, is from November till the end of March or the beginning of April, so that there will be pigs farrowed at the best seasons, either for killing as for sucking pigs or for shock pigs; *i. e.* pigs to be turned into the stubbles after harvest, to be reared.

Though a sow may be with pig at the first breaming as it is almost constant, yet it may be more prudent to suffer her to keep company with the boar for some time afterwards, to prevent the casting of her pigs before the time.

A young sow in her first pregnancy should be kept from the insults of dogs, or from being too much hurried, for these some-

times have caused them to slip their pigs after three months pregnancy.

A sow in a few days after she has pigg'd, provided she has been well fed, will seek the boar, and if she be suffered to be served by him, it will not be difficult to conceive how she may bring forth three litters in a year.

Some young sows at their first farrowing, are subject to eat their pigs, and therefore ought to be watched carefully when they are near the time of their farrowing.

The best way of watching her to prevent it, is to feed her very well for two or three days before her time of farrowing; but if this be not done then as soon as she has farrowed, wash the backs of the pigs with a sponge dipt in an infusion of aloes and water warmed, and this will prevent her from devouring them.

It will be necessary to keep the sow clean in her bed, and to help her by feeding now and then with warm milk, with a little coarse sugar in it, as soon as they can conveniently be brought to take it; especially if the sow has brought a great number, and also to kill and dispose of some of them.

The best time for killing sucking pigs, and when they are first accounted whole-some, is about three weeks old, and the others that remain for breed will soon be-
gin

gin to follow the sow and shift for themselves.

If the sow is very large and in good plight, she ought to have room enough given her, either in the sty or house where the pigs are kept, to prevent her overlaying them; and care should be taken when she comes in from feeding, that she does not fall down upon the pigs.

If you have several sows that farrow at or about the same time, they should be put into different styes or houses, or else they will destroy one anothers pigs.

When a sow has brought a fare of pigs; barley made soft in water is of great nourishment to her, and is both a cooling diet and a great strengthener; or you may break it or half grind it and steep it in water, and it will be very advantageous both to her and her pigs.

But if when provision be scarce, whether wash, grains, whey, or other food, the best way to preserve the strength of the sow, will be to sell all the pigs at the best market, as sucklings, as soon as you conveniently can, and then she will be the sooner fit for the boar.

It is observable, that scarce any creature is so voracious as swine; and a sow that has pigs is the most mischievous creature that we know of. It has besides its own natural disposition a wantonness which in-

duces it to prey upon every thing that falls in its way, or can get within its power.

Its ill nature is visible in its disposition to prey upon its own pigs; and it were well if its voracious appetite would end there, but there are many melancholy instances of the mischief done by sows that had pigs, in the wounding and eating of young children, when a due care has not been taken to prevent it, and besides taking all care imaginable to secure little infants from them, one very good way will be to feed them well, letting them have plenty of victuals.

And take care especially, that when a sow has pigs, to let her have water altho' she has plenty of milk, or the best wash from the dairy allowed her. It will be the best way to keep her from doing harm.

When you have a mind to wean the pigs from the sow, feed them now and then, when the sow is from them with the best milk that can be spared from the dairy; which begin first with it warm, but at three weeks end give it them cold, if you design to rear them; and then you may at a month old either let them be fed alone or keep company with the sow abroad.

When a boar is upwards of five years old, it will be the best way to geld him, in order to put him up for brawn, for after that time he is not accounted fit for generation, his flesh then is not too hard, and
his

his skin is most naturally inclined to be brawny. However if he be gelt, he will be fit for bacon.

A sow may breed till she is six years old; and some allow them to breed seven years before they put them up to fatten, but others disapprove of this; because, they say she never receives her food well, nor can make good flesh, unless she is strong in body, and has taken the boar some time before she is put up: for otherwise she will pine, and her meat be little or no nourishment to her.

It is also necessary when hogs are put up to fatten that they should be kept out of the hearing of the cry or grunt of other hogs: for else upon the first confinement, notwithstanding they have great plenty of food given them, they will pine and decline in their flesh.

This should be observed, especially in putting up boars in franks for brawn: for if they are within the reach or sound of any other swine, they will be sullen and not feed, and besides you must be very careful to keep them cleanly when they are once inclosed in franks; the machine being so contrived that their dung may be cleaned away every day, or they will not thrive.

Another thing ought to be observed by those who breed and feed swine, and this is that they do not suffer them to feed too
rashly

rashly, nor give them too plentifully before they put them up; but only a moderate quantity, such as will keep them in a good state of body, and prevent them from being too ravenous.

And besides breeding sows, if they are suffered to be fat, will be in danger of their lives at the time of farrowing.

If you keep any number of swine, it would be best to give them a feeding every morning and evening, suffering them to range about in the day time, seeking their food, which they will not want, if there be any herbs or grafs to be found in the lanes or such waste grounds where they may go: for there is scarce any herb or root that is disagreeable to them.

But in the time when grafs is fresh and in great plenty, especially in the spring of the year, you must not let them have their liberty to feed upon that, for if they do, it will certainly give them the gargut.

In harvest time you must take care to yoke and ring them, to hinder them from breaking through hedges and fences to get to the corn; for they will in a little time do more mischief than they are worth themselves.

During the growth of these creatures, before you put them up to feed, either for porkers, or to fatten them for bacon; if you happen to have a scarcity of wash or
swill,

swill, you may give them greaves and water, which is as good a food, (these are made of the offals of melted tallow and are to be had of the tallow-chandlers.) But this will be proper only for about a month before you design them for pork, or what is called green bacon, which is pork for pickling.

If hogs be allowed to eat too great plenty of fresh grass, they generally appear heavy, hanging down their heads and staggering after four or five days plentiful feeding on spring grass, and seldom live above a day or two after they are thus affected. See gargut page 77.

When a sow has passed her breaming time, or if she does not seem inclinable to take the boar, give her some parched oats in her wash, or morning and evening food, some give a sow the small end of a rennet bag to excite her to take boar.

When you have chosen the best pigs for rearing, and pitched upon such as are designed for boars and sows for breeding, geld the males of the rest and spay the females, which are then called spayed gelts: these that are thus castrated will be fit first for the butcher to kill for pork.

The best time for killing a hog for pork or green bacon, is at full half a year old, or at almost nine months old: hogs flesh
of

of this age will eat tender and sweet, white and full of gravy.

If it be either us'd as pork, or if it be pickled, in the manner elsewhere directed, it will exceed even Westphalia bacon, or any pickled pork that is common.

But in order to this it is necessary to observe the following directions, as to the food such hogs should have for a month or five weeks before they are killed.

If the hog be designed for a porker only, put him up and give him raspings of bread, which may be had of the bakers. Soak these raspings in water and give them to the hogs that are to be fattened for porkers: but whereas this is a soft food, it will be best in putting up the hogs the first week to add to every bushel of these raspings a peck of horse-beans broken a little in a mill.

And if you would have the flesh and fat yet more firm, you may sprinkle into the meat made of the raspings, a small quantity at a time of oak bark finely ground.

Another way of feeding swine for pork to be used fresh in the kitchen, is with barley meal, to be tempered with water till it is of the consistence of mortar, used by bricklayers.

Twelve bushels of barley thus made into meal, will fatten a hog of full growth of the largest size for bacon, as well as sixteen
strike

strike bushels of pease, and make his fat as firm as pease will do.

But for pork to pickle, half the quantity will be enough, or less may serve, according as people fancy to have the hogs fatter or leaner, either for fresh pork or pickled pork.

But the method by some principally recommended is for pork to be pickled, to give the hog about three pints a day of horse-beans with his common meat for a week before he is put up; and to take care that he never want either meat or water, and to bed him well with clean straw or pease halm, which must be frequently shifted, that he may be kept sweet and clean.

At the first of his being penned up, he will eat about three quarters of a peck a day, and by degrees as he grows fatter, his appetite will decline. About three bushels of pease, or four at most, if he be of the larger breed, will fit him for killing, without making him too fat.

In this condition the flesh will take salt better than by any other food.

But acorns, if they can be had, are preferable to horse-beans, and may be used in such quantities as directed above in the week before the hog is shut up in the sty.

The more acorns you give the hogs the firmer their flesh will be, the acorn being
of

of an astringent quality, and so likewise is the bark of oak.

Chestnuts are likewise of the very same nature, and are nourishing also like acorns. Horse beans too are of the same quality, but are rather too hot to be given in too great plenty. Pease also are good to nourish and bind the fat of hogs; barley also is very good, and the softer food among these is the raspings of bread.

The feeding and fattening Hogs for Bacon.

Those hogs that are generally put up for bacon, being generally older than those that are fed for porkers or for killing to be pickled, they will not so easily be brought to feed in the sty as the younger hogs will; therefore the best way of managing them will be to keep them scant of victuals the day before they are put up.

Let their sty be made and kept as clean as may be, and let them have sufficient litter.

And because they will at first (however good their victuals may be) whether pease or any other sort be apt either out of wantonness or ill temper to toss it out of the trough they feed in, to prevent this some have contrived a method of giving them their food no faster than they have an appetite for it, which is done by means of a box or bin in the following form.

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The mouth or opening is in the form of a conelike box or bin with the broader end upwards into which the meat is to be poured. At the lower end it will fall by degrees into a trough or receiver of wood where the hog may eat it as it falls, without being capable of spoiling any of it or wasting it. The trough or bin may be made to contain a bushel and must be covered at the top, closely barred or locked down to prevent the hog from breaking into it, this trough should be two foot and a half square, and the bin may be as broad at the top, ending narrow at the bottom.

Hogs being fed after this manner, will have the advantage of the common way, that tho' the fat should probably encrease so fast as in the common way of feeding, yet it will be more firm and not so subject to turn rusty: for it is observable that all swine who are fed after their own gluttonous manner, will indeed grow fat quickly, but then their fat will be spongy for want of sufficient time for digestion of their meat.

The hog or hogs being fed as before directed, are to be killed and dressed; of doing which there are two ways, the one is scalding and the other singeing. The skin of that which is scalded, is not so rough as that which is singed; and it is reasonable to be supposed that the salts which we use

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will

will more readily penetrate the skin that is scalded than that which is singed; and also that the scalded skin will be tenderer than the other when it is boiled and eaten.

If the hogs be scalded, the common pickle for pork is the best way of preparing it for drying.

This is the way that is generally practis'd in making of hams, which may, after it has been in the pickle five or six weeks, be hung up in a chimney where wood or saw-dust is burnt; or, if neither of these can well be had, then Newcastle or other pit coals may do, but the smoak of wood is to be preferred; and will render the flesh of much finer flavour than the smoak of coal.

This likewise is to be observed that the more gentle and constant the fire is, so much the better and more equally will the bacon be cured.

And for want of using this caution, bacon has sometimes grown rusty before it was half made; and sometimes it will be red half through and green in the middle.

It is a rule, that whatever is red in the flesh of bacon is fully cured, and what is not will be subject to decay.

I shall give an account of the methods of curing bacon or preparing hams in Westphalia, Hamborough, Norway and other bacon countries, by smoaking lofts or closets adjoining to the funnels of their chimneys,

neys, in garrets or other places remote from the fire; from whence it will appear that the smoak is the principal means of curing bacon.

For as it is in those countries, the manner of drying their bacon is to keep it very remote from the fire and out of the heat of it, so we are sensible of the good effects of that practice.

Their bacon is tenderer and esteemed too of a higher and richer flavour than that made in any other parts of Europe, and yet the bacon of those parts is salted for the generality with no other than common salt.

But these foreigners use but a small share of salt, in comparison to what we do in England and Ireland, relying chiefly upon the smoak for curing their bacon; while on the other hand our bacon-makers depend chiefly on the quantity of salt; and imagine that it will secure it from the over heat of the fire that is given it in drying.

But it being an over common method to hang bacon up to dry too near the fire it commonly turns rusty in a little time.

The ingenious gentleman Mr. Warner of Rotherhithe, who resided many years in that country, communicated the account of their method of preparing and curing their bacon in Westphalia.

Since this, some persons, as Dr. Corbet of Bourne Place near Canterbury, as it is

said, built a bacon house capable of drying sixty large hogs at one time, and has improved upon the Westphalia method, viz. by drying so many with one fire; when their drying rooms and closets do not cure but perhaps five or six at a time.

Any farmer or other person may make smoak or drying closets in their garrets, sufficient for curing bacon for their own families, if they can allow such a part of their upper story for such use as joins with the same funnel of their chimney where the most constant fire is kept; taking this precaution, when they make such a closet that it be as close as possible; so that when they let in the smoak from the chimney none of it may escape.

The manner of letting in the smoak must be through an hole from the chimney near the floor of the drying room, which must be guarded or governed by a register of iron which at pleasure may be opened or shut, either to let the smoak pass up the chimney without interruption or turned altogether into the bacon room, when it is necessary.

Near the cieling above there ought to be another hole in the chimney governed by a register of iron, to let out the smoak in such quantity as you please; or being shut with iron below may let the smoak pass freely up the

the chimney funnel as it may be thought necessary.

It is proper that in making these registers that the handles of them should be without the closet to turn them to what degree you please, without entering the smoke room, and likewise care must be used in drying, that the flitches be so hung up that one piece may not touch another; but so that they may receive the smoke on every side.

These places, as they are remote from the fire and are pretty constantly fed with smoke, do bring the flesh to such a state that it will not afterwards be subject to putrefaction.

As to the distempers that hogs are subject to, they easily shew their illnets, if they ail any thing, by the hanging down of their ears, their dull heavy looks, and the loss of their appetite, which they never recover till they are well again. If you are to buy hogs, and suspect their healthiness, draw a handful of bristles against the grain of the hair; and if the root be white and clean the hog is sound; but if they be bloody or spotted, he is sick.

§. 1. *For the Gargol or Gargut in Hogs.*

The signs of which are hanging down of the head, and carrying it on one side, moist eyes, staggering and loss of appetite. 'Tis occasioned from corruption of blood, ingendred

dred by the eating of rotten fruit, garbidge or carrion, rank grass, wherein is much hemlock, &c. For the cure of which, first let them blood under the tail, and under the ears, and give the following drink.

Take angelica, rue, staverwort, or hog's madder, and may-weed, of each a handful; shred them very small, and boil them in a pint of milk very well; and when 'tis cold enough, add to it a pennyworth of fallad-oil, and the same quantity of treacle. This receipt I had from one that has often try'd it, and tells me he never found it to fail.

§. 2. *For the Meazels.*

The sign of the meazels, is, if you find under their tongues small black blisters, or that they cannot stand on their hinder-legs, or that their bristles when pulled out, are bloody.

Give the hog in his wash an ounce of crude antimony powdered, and keep him in the sty three or four hours after giving of it, and repeat it till cured. Some give them brimstone in their meat, which they say is an extraordinary thing; and that if you give to a well hog an ounce of crude antimony, it will make him fat above a fortnight sooner than another hog that hath the same meat, giving half a drachm at a time. If hogs get a swelling on the side of their throat by eating of acorns, lance it and anoint

anoint it with hogs lard, and it will quickly be well.

C H A P. VI.

Of Rabbits.

Rabbits are very profitable creatures for their great increase, and their be-kept on dry barren sand or gravel that will maintain nothing else; which the dryer 'tis the better for them; this sort of lands they much improve by their dung for rye. Besides which many make great profit of them by keeping them in hutches near great towns, and some keep great quantities of them in pits for to catch when they want them; they being a very ready dish upon any occasion: but they must be in a very dry warm soil; if they are any thing deep, they will be else too cold, or too damp for them. I should rather prefer for them a large barn made very tight after the way of making of barns for preserving corn in, to keep vermin out of: for the tame rabbits must lie dry, and warm, or else they will not breed in winter, which is the chief time of their profit, and what makes them preferred before the wild ones, and they are much better meat, if they have their liberty; especially the white shock Turkey rabbit.

A

A rabbit begins to breed at a year old, will kindle at least seven times a year, if it litters in March: it carries its young in its belly for thirty days, and as soon as the doe has kindled will take buck again; neither can they suckle their young till they have taken buck.

Tame rabbits more than all other animals delight in solitude and retirement; they are violent hot in the act of generation, performing it so vigorously and excessively that they will swoon and lie in a trance a good space after the act is over.

The males are of cruel disposition, and frequently kill the young ones, if they can come at them, and therefore the females after they have kindled hide them; and close up the holes in such a manner that the buck cannot find them.

They are very fertile, bringing forth every month, and therefore when they are kept tame in hutches, they must be watched; and as soon as they have kindled be put to the buck, for else she will mourn, and scarcely can bring up their young.

The hutches in which tame rabbits are to be kept, should be about two foot square and a foot high, and that should be divided into four partitions or squares, one quarter with an open grate or wire window, through which the rabbits may feed, and a less apartment without light, in which the doe may kindle or kennel; and under this win-

dow

dow should be a box or trough in which may be put her meat; and thus may be made hutch over hutch three or four stories high; keeping bucks and does apart from one another.

And when a doe has kindled in one nest, and then has kindled in another, the first young ones must be taken from her and put together into other hutches, with rabbits of their own age, but not so many but that they may have ease and liberty.

In the chusing tame rich rabbits, there is no occasion to have regard to their shape but to their richness; but let the bucks be as large and rich as you can get them; and those coats are esteemed the richest that have the equallest mixture of black and white hair together; but so that the black do rather shadow than the white: a black coat with a few silver hairs, being much richer than a white coat with a few black ones.

Every tame rich rabbit that is killed in season, as from November, till after Candlemas is much better and larger than those killed in another season; and when another skin is worth not above two pence or three pence at most, these are worth about eight pence.

Again the increase is more in the tame than the wild, the former bringing forth more than the wild.

The

The best food for them, is, the sweetest, shortest and best hay that can be got. This hay must be put to them in little cloven sticks, that they may with ease reach and pull it out of the same, so as not to scatter or waste but as little as may be; and sweet oats and water should be put for them in the troughs under the boxes, and this should be their ordinary and constant food; all other being to be used physically, giving it them two or three times in a fortnight to cool their bodies; such as mallows, clover-grass, four docks, blades of corn, cabbage or colewort leaves and the like, all which do both cool and nourish them greatly; but you should but seldom give them sweet grains, because nothing brings them to the rot more.

If they have any grass cut for them, you must be very careful that there be no weeds nor hemlock amongst it, for though they will eat it very greedily, it is present poison, killing them suddenly.

Their hutches must also be kept sweet and clean, for the scent of their piss and dung is so strong, that it will be a very great annoyance both to themselves and those that look after them.

The Infirmities of Rabbits are,

1. The rot, which proceeds from the giving too much green meat, or greens with

with the dew on them ; and therefore they must have it but seldom, and then the dryness of the hay will dry up the moisture, knit them and keep them sound.

2. They are apt to be affected with a certain rage or madness, that proceeds from corrupt blood, which is caused by the rankness of their keeping, and this is known by their wallowing and tumbling with their heels upwards and leaping in their boxes ; the cure of which is to give them tare thistle to eat.

C H A P. VII.

Of Dogs.

DOGS are not reckoned among the number of the profitable cattle, but as they are upon several occasions very useful to the farmer, and what he cannot well be without ; and they being of several sorts, I shall leave the particular description of them to the lovers of sport, who are the most concerned to be curious in the particular kinds and shapes of them. And what I shall propose shall only be some remedies that may be a help to some of their common distempers ; especially for that of madness, which is a very prejudicial distemper, not only in the loss of a good dog, but in
that

that he may infect the rest of the stock; and be also very dangerous to the family and neighbourhood.

I shall in this case, for the publick good, advise every one that keepeth a dog, to have him wormed, which is a thing of small trouble or charge, and what I believe will prevent their being mad, if they are not bit with a dog that is mad; and if they are, I am am apt to think it prevents their biting of any other creature; for I had three dogs bit with mad dogs at three several times that were wormed; and though they died mad, yet they did not bite or do any mischief to any thing I had. And having a mind to make a full experiment of it, I shut one of them up in a kennel, and put a dog to him that I did not value. The mad dog would often run at the other to bite him, but I found his tongue so big swelled in his mouth that he could not make his teeth meet. This dog (though I kept him with the mad dog till he died) did not ail any thing, though I kept him two years afterward, and gave him no remedies to prevent any harm from the biting of the mad dog. But as there are several sorts of madness in dogs, so I cannot tell whether the effects are the same in all. But my dogs seemed to die of the black madness, which is reckoned the most dangerous. And there-

therefore I cannot tell how far the following receipt may be effectual in all sorts of madness, though it has not failed in curing all the dogs that were bitten, I have given it to; though all those I gave it not to, died. The remedy is this. "Take white helem-bore and grate it with a grater to powder, which mix with butter, and give it to the dog." The dose must be proportioned to the size of the dog; to a very small lap-dog you may give three grains, and to a large mastiff sixteen grains; and so in proportion to other sizes. The best way is to give but a small quantity at first: you may increase the dose as you find it work and not work. But as 'tis a strong vomit, and what will make them very sick for a little time; so you must be careful to keep them warm that day you give it, and the next night, and do not give them any cold water; but when it hath done working, towards the afternoon, give them some warm broth: and the next morning give the same before you let them out. This is an extraordinary remedy likewise for mange; I never knew three doses of it fail in curing any dog that had it, except he had a surfeit with it: which if he hath, let him blood also, and anoint him two or three times over with gun-powder, and soap beat up well together, and it will cure him.

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I have

I have heard of a gentleman who cured several creatures that were bit by mad dogs with only giving them the middle, yellow bark of buckthorn, which you must boil in ale for a horse or cow, and in milk for a dog; and being bit with one himself, he adventured to take nothing else, and did very well. You must boil it till 'tis as bitter as you can take it.

C H A P. VII.

Of Fowls.

THE country-man's farm or habitation cannot be said to be completely stored or stocked without fowl as well as beast, which yield a considerable advantage by their eggs, brood, bodies and feathers. Any poor cottager that lives by the highway-side may keep them, they being able to shift for themselves the greatest part of the year, by their feeding on insects, corn, or any thing almost that is eatable by any other sort of animal: and therefore they are kept to great advantage at barn-doors, and other places, where corn or straw is scattered.

As for cocks and hens, I shall not enter into a description of the several sorts of them only advise you to chuse those that are the
best

best breeders and the best layers ; the oldest being always reckoned the best sitters, and the youngest the best layers ; but no sort will be good for either if you keep them too fat : the best age to set a hen for chickens, is from two years old to five ; and the best month to set them in, is February, though any month between that and Michaelmas is good. A hen sits twenty days, whereas geese, ducks and turkies sit thirty. Observe to let them have constantly meat and drink near them while they sit, that they may not straggle from their eggs, and chill them.

One cock will serve ten hens.

If fowls are fed with buck or French wheat, or with hemp-seed, they say they will lay more eggs than ordinary ; and buck wheat either whole or ground, and made into paste, which is the best way, is a grain that will fat fowl or hogs very speedily ; but the common food to fat them with, is barley meal wet with milk or water ; but wheat flour is better.

A good hen should not differ much from the nature of the cock, she should be working, vigilant and laborious ; both for herself and her chickens ; in size the biggest and largest are the best, every proportion answerable to those of the cock, only instead of a comb, she should have upon her crown a high, thick tuft of feathers.

She should have many and strong claws; but it will be better if she has no hinder claws; because they often break the eggs; and besides such as have, do often prove unnatural.

Crowing hens are neither good layers nor good breeders.

The elder hens are rather to be chosen for hatching than the younger, because they are more constant, and will sit out their times; but if you chuse for laying, chuse the youngest, because they are lusty and prone to generation; but do not chuse a fat hen for either of these purposes; for if she be set, she will forsake her nest; and as for laying, the eggs she lays will be without shells, and besides she will grow slothful and lazy and delight neither in the one or the other act of nature.

Those eggs that are laid when the hens are a year and a half or two years old are the best; you must at that time give the hens plenty of victuals, and sometimes oats with fenugreek to heat them if you would have large eggs; for those that are fat commonly lay but small ones; mix some chalk with their food, or mix some bruised brick with their bran moistened with a little water, and give them their belly full of half-boil'd barley, with vetch and millet.

Some

Some hens have the ill faculty of eating their eggs; to prevent this take out the white of an egg, and put moist plaister round about the yolk and suffer it to grow hard; and when the hen attempts to eat it and finds she can not do it, she will soon give over breaking her eggs.

Or pour a clear plaister upon the yolk of an egg, and let it harden so that it may serve for a shell, and put it into the nest; or you may shape an egg of plaister or of chalk, and let that be for a nest egg.

Those hens that have spurs often break their eggs, generally will not hatch them, and they will sometimes eat them, these must be scoured as well as those that scratch and crow like a cock; first by plucking the great quills out of their wings and by feeding them with millet, barley, and paste, cut into bits pounded acorns and bran with pottage, or crumbs of wheat bread steep'd in water or barley meal.

Keep them in a close place and at rest, and pull the feathers from their heads, thighs and rumps; if a hen be too fat or has a looseness she will lay wind eggs.

A hen will be a good siter from the second year of her laying to the fifth; the best time to set a hen that the chickens may be large and most kindly is in February in the increase of the moon, that she may disclose the chickens in the increase of the next

new moon being in March, for one brood of this months chickens is worth three of those of any other month.

But hens may set from March to October and have good chickens; but not after that time, for the winter is a great enemy to their breeding.

A hen sits just twenty-one days, and if you set a hen upon the eggs of ducks, geese or turkies, you must set them nine days before you put her own eggs to her, of which a hen will cover nineteen, but always set an odd egg what number soever you set her with.

It will also be proper to mark one side of the eggs when you put them under the hen, and to observe whether she turns them from the one side to the other, and if she does not, then take an opportunity when she is from them to turn them yourself. But a hen that does not turn them herself is of the less value.

Take care that the eggs you set a hen on be new; which may be known by their being heavy, full and clear, which may be known by looking through them in the sun; nor do you chuse the largest eggs, for they have often times two yolks, and though some are of opinion that such will produce two chickens, it proves commonly a mistake, and if they do they generally prove abortive and monstrous.

A hen must not be taken off or disturb'd from her nest, for that will make her utterly forsake it.

You must also let her meat and water stand by her while she is sitting, that the eggs may not cool, while she is gone too far to seek her food; and while she is absent from her nest, stir up the straw, and make it soft and handsome, and lay the eggs in the same order as she left them.

It will be very proper to perfume her nest with rosemary or brimstone, and you must take great care that the cock does not come at the eggs and set upon them for he will endanger the breaking of them, and cause the hen not to like her nest so well.

A hen will have chickens of divers colours, if you paint the eggs variously when you set them; if you cause her to pair with a cock pigeon, partridge or pheasant, she will have chickens of a very agreeable colour.

To set hens in winter time in stoves or ovens, is of no use in England or Ireland, for though they may perhaps hatch; yet the chickens may be good for little.

However, a certain French author tells us that chickens may be hatched without the hens sitting upon them; by filling two cushions with hens dung, finely powdered, and adding the softest of hens feathers, as thick as may be, and putting the eggs upon

upon one of the cushions with the smallest ends uppermost, and putting the other cushion over them ; they being set in a hot place ; these must be left thus for two days without touching them ; but after that time they must be turned to the twentieth day in such a manner that they may be all covered, and the twenty-first day the chickens must be taken gently out of the shells.

This need not seem very strange, seeing we have very credible authority for it that the ancients hatched chickens under the ground in Egypt without any assistance, and it has been experienced in our own time that the chickens may be hatched with a small fire or the heat of dung ; but then many of them perish.

When hens are laying, the old straw should be taken away, and fresh put in, that it may not breed fleas and other vermin which much incommodes them.

Of the maladies of Hens.

Sitting hens are sometimes troubled with lice and vermin ; for the cure, pound burnt cummin and staphisager of each equal quantities, and mix it with wine and rub the hens with it, or wash them with a decoction of wild lupines.

If Hens are troubled with sore Eyes.

Wash them with womans milk or the juice of purslain, or else with armoniac cummin

min reduced to powder, and honey mixed, of each equal quantities, and in the mean time keep them in the shade.

If Hens are troubled with a looseness.

Mix a handful of barley meal and as much wax, in some wine, make it into a mass, and give it them in a morning, before they have any other meat, or else let them drink a decoction of apples or quinces.

Hens sometimes sicken by laying too many eggs, so that having exhausted their strength they languish: the same sometimes happens to sitting hens by their sitting too long; to remedy this take the white of an egg which roast till it looks as if it were burnt; mix this with an equal quantity of dried raisins, also burnt, give the hens this fasting.

Hen House.

Let it be large and spacious, with a pretty high roof and strong walls to keep out both thieves and vermin; let there be windows on the East side, that they may enjoy the benefit of the rising sun, strongly lathed and close shut; upwards, and round about the insides of the walls upon the ground should be made large pens of three foot high for geese, ducks and large fowls to sit in; and near unto the eings of the house should be long perches, reaching
from

from one side of the house to the other, on which should set cocks, hens, capons and turkies, each on several perches as they are disposed.

At another side of the house at the darkest part, over the ground pens, fix hampers full of straw for nests, in which hens should lay their eggs; but when they sit to hatch chickens, then let them sit on the ground, otherwise it will be dangerous.

Also let there be pins stuck in the walls, that the poultry may climb to their perches with the greater ease.

Let not the floor be paved, but made of earth, smooth and easy, let the smaller fowl have a hole made at one end of the house to go in, and come out at when they please, they will seek out roosts in other places; but for larger fowl you may open the door morning and evening.

And it would be the better if this hen house were situated near some kitchen, brew house, bake house or kiln, where it may have the air of the fire, and be perfumed with smoak, which is to pullets both delightful and wholesome.

Chickens.

As soon as they are hatched, if any be weaker than the rest, wrap them in wool, and let them have the air of the fire; it will also be very good to perfume them
with

with rosemary ; so the first hatched chickens may be kept in a sieve till the rest are disclosed, for they will have no meat for two days ; for some shells being harder than others they will require so much distance of time in opening ; but unless the chickens are weak or the hen unkind, it will not be amiss to let them alone under her, for she will nourish them kindly.

When they are two days old, give them very small oatmeal, some dry and some steep'd in milk, or else crumbs of white bread, and when they have gained some strength, curds, cheese pairings, white bread, crusts soaked in drink or milk, barley meal, or wheat bread soaked in drink or milk, barley meal or wheaten bread scalded, or the like soft meat that is small and will be easily digested.

It will be proper to keep them in the house for a fortnight, and not suffer them to go abroad with the hen to worm ; also green chives chopped among their meat is very good, and will preserve them from the rye or other diseases in the head, and never let them want clean water, for puddle water will be apt to give them the pip.

Nor must you let them feed upon tares, darnel or cockle, for these are very dangerous to young ones, nor let them go into gardens till they are six weeks old.

If

If you would have them crammed, coop them up when the dam has forsaken them, and cram them with dough made of wheaten meal and milk, which dip in milk and thrust down their throats; but let them not be too big lest they choak them, they will be fat in a fortnight.

To distinguish whether a chicken is good or not. After a chicken is kill'd it will be stiff and white, and firm in the vent if new kill'd; but tender and green in the vent if stale.

If you rub your finger on the breast of a scalded chicken, if it be new killed it will feel rough; but if stale slippery and slimy.

A crammed chicken, if he be fat will have a fat rump and a fat vein upon the side of the breast of her, like a pullet.

To fatten Chickens.

Put them into coops and feed them with barley meal; put a small quantity of brick dust into their water, which they ought never to be without, this last will give them an appetite to their meat, and fatten them very soon. For in this case it must be considered that all fowls and birds have two stomachs as they may be called, the one is their crop that softens their food, and the other the gizzard that macerates their food; in the last we always find small stones and sharp sand, which help to do that office, and

and without them, or something of that kind, a fowl will be wanting of its appetite to eat ; for the gizzard cannot macerate (or as it may be said) grind the food fast enough to discharge it from the crop, without such sand or stones, and in this case the brick-dust is assisting.

C H A P. VIII.

Of Geese.

GE E S E are profitable many ways, as for food (for which they commonly bear a good price) their feathers and their grease. They will live upon commons or any sort of pastures, and need little care or attendance ; only they should have plenty of water. The largest geese are reckoned the best : but there is a sort of Spanish goose that is a much better layer and breeder than the English ; especially if the eggs are hatched under an English or Irish goose.

Geese lay in the spring, the earlier the better ; because of their price, and of their having a second brood. They commonly lay twelve or sixteen eggs a-piece. You may know when they will lay by their carrying of straw in their mouths ; and when they will sit, by their continuing on their nests as they have laid. A goose sits

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thirty

thirty days: but if the weather be fair and warm, she will hatch three or four days sooner. After the goslings are hatched, some keep them in the house ten or twelve days, and feed them with curds, barley-meal, bran, &c. After they have got some strength, let them out three or four hours in a day, and take them in again, till they are big enough to defend themselves from vermin. Others put them out at first, and I think they do as well. One gander will serve five geese.

If you would fat green geese, you must shut them up when they are about a month old, and they will be fat in about a month more. Be sure to let them have always by them in a small rack some fine hay, which will much hasten their fattening. But for fattening of older geese, 'tis commonly done when they are about six months old, in or after harvest, when they have been in the stubble fields, from which food some kill them, which is a good way; but those that have a mind to have them very fat, shut them up for a fortnight or three weeks, and feed them with oats, spelted beans, barley-meal, or ground malt mixed with milk, the best thing to fatten them with being malt mixed with beer. But in fattening of all water-fowl you may observe that they usually sit with their bills on their rumps, where

where they suck out most of their moisture and fatness, at a small bunch of feathers, which you will find standing upright on their rumps, and always moist, with which they trim their feathers, which makes them oily and slippery more than other fowls feathers are, that the water may slip off them, which if cut away close, will make them fat in less time, and with less meat than otherwise. Geese will likewise feed on, and fatten well with carrots cut small and given them; or if you give them rye before or about Midsummer, it will strengthen them, and keep them in health, that being commonly their sickly time.

In some countries they shear their geese for their feathers, and some pull them twice a year; but this latter way is more injurious to them, and therefore 'tis better staying till moulting-time, and till their death for their feathers.

C H A P. IX.

Of Ducks and other Water-Fowl.

TAME ducks are very necessary for the husbandman's yard, in that they require no charge in keeping; they live on lost corn, worms, snails, &c. for which reason they are very good for gardens. Once

in a year they are very great layers of eggs, especially a sort of duck that turns up the bill more than the common kind; and when they sit they need little attendance, except to let them have a little barley or offal corn and water near them, that they may not straggle far from their nest to chill their eggs. For the ordering of which, 'tis much the same way with that of geese. They are reckoned to be beter hatched under a hen than a duck; because while they are young, the hen will not lead them so much into the water. Some reckon it very good to cut off the feathers of their rumps; because when their tails are wet, it often occasions their drowning. As to the fattening of them, you may do it in three weeks time, by giving of them any kind of corn or grain, and good store of water. Ground malt wet with milk or water is best.

If you would preserve wild ducks, teal, widgeon, shell-ducks, &c. you should have a place walled in with a pond in it, that hath good shelter upon some island or place near it, that the duck may hide her eggs from the drake, who will suck them, if he finds them.

There is likewise a sort of ducks called decoy-ducks, that will bring whole flights of fowl to their retirements, where are conveniencies made for the catching of them.

CHAP.

C H A P. X.

Of Turkies.

TURKIES are a fowl that prosper very well in open countries, where there is not much shelter to harbour vermin to destroy them; for they are subject to ramble. The hens likewise are so negligent of their young, that whilst they have one to follow them, they never take any care of the rest; and therefore there must be a great deal of care taken of them whilst they are young to watch them, and to keep them warm, they being an extreme chill bird. But some, where they have a convenience of a small covert near the house, let them take their liberty, and seek their own nests; but 'tis only in some particular places that they do well with such management. I knew a gentleman that had a hen-turkey of the wild kind from Virginia; of which, and an English cock, he raised a very fine breed, that bred wild in the fields and always became tame when grown up; they were a very hardy breed, and much larger than ours, and reared their young ones without any care or trouble, breeding much better than our Irish.

If you keep them with corn, they are very great feeders, and will devour a great
 I 3 deal;

deal ; but if left to their liberty when grown up, they will get their own livings without either trouble or charges, by feeding on herbs, feeds, &c.

Turkies being very apt to straggle, will often be laying their eggs in secret places ; and therefore the common sort of them must be often watched, and made to lay at home. They begin to lay in March, and will sit in April. Eleven or thirteen eggs are the most they should sit on. They hatch in between twenty five and thirty days : and when they have hatched their brood, be sure to keep the young ones warm ; for the least cold kills them : feed them either with curds, or green fresh cheese cut in small pieces. Let their drink be new milk, or milk and water. Some give them oat-meal and milk boiled thick together, into which they put some worm-wood chopped small, and sometimes eggs boiled hard, and cut in little pieces. You must feed them often, for the hen will not take much care of them, and when they have gotten some strength, feed them abroad in some close walled place, where they cannot stray, and do not let them out till the dew is off the grass, taking care to have them in again before night, because the dew is very prejudicial to them.

For the fattening of turkies, sodden barley is very excellent, or sodden oats for the
first

first fortnight, and for another fortnight, cram them as you do capons. They are only to be crammed in a morning, which must be given to them warm, and let out all day, being sometimes fed with corn while out; because, being a fullen bird, they are apt else not to fat so kindly. Their eggs are esteemed very wholesome, and a great restorer of nature.

C H A P. XI.

Of Pigeons.

PIGEONS or doves are of several sorts, both the wild and tame kind, as wood-pigeons, rock-pigeons, stock or ring-doves, turtle-doves, dove coat-pigeons, and several sorts of tame pigeons, that are commonly fed by hand, and kept for the largeness of their bodies, beauty and diversity of their colours. They breed almost every month of the year. We shall only treat here of such as are or may be kept in dove-coats, with little or trouble to the owner, only the feeding of them in frost or snowy weather, when nothing is to be had abroad; and about Midsummer, before pease are ripe, which time is usually called Benting-time, because then necessity forceth them to feed on bents, or seeds of bent-grass;
about

about which time they usually have a great many eggs and young ones, which will be starved if they are not helped. But pigeons thrive best in open countries, because there generally is the most corn: and the gunners cannot get behind a hedge to shoot them; especially in such countries as they sow a great many grey-pease^a and horse-beans in; for they are sowed the first of any sort of grain; their early feeding on which, occasions them to be forwarder in breeding than in other places. Buck-wheat or brank is also very good to feed pigeons with to make them lay and breed.

There is nothing the pigeons more affect than salt; for they will pick the mortar out of the joints of stones or brick-walls, merely for the saltness thereof; therefore many give them, as often as need requires, a lump of salt, which they usually call a salt-cat, made for that purpose at the saltterns, which makes the pigeons much affect the place. If lime be mixed with sand, loam, and a little salt put to it, and laid near, or put into the pigeons-house, they will delight much to pick it: but it must not be made so strong as common mortar.

Where I formerly lived, I got a pair of ring-dove's eggs, and hatched them under a tame pigeon, and they lived with the pigeons, and bred much better than the
pigeons,

pigeons, that in a little time I had great increase of them ; so that I believe I might have stocked a dove-coat with them. They are much better than any other sort of pigeons, for the largeness of their bodies and their hardiness, and in winter-time they will live upon ivy-berries, turnips and a great many other things that pigeons will not. But being obliged to remove my habitation, I have not since been able to make a thorough experiment of them. I suppose turtle-doves will do the same, because I have often seen a great many of that sort, (belonging to gentlemen) which were as tame as pigeons. Pigeons are sometimes apt to be scabby on the backs and breasts, which distemper will kill the young ones out-right, and make the old ones so faint that they cannot take their flight to procure meat, which starves them by degrees, so that whole dove-coats are often destroyed with it. To cure which distemper,

Take a quarter of a stone of bay-salt, and as much common salt, a pound of fennel-seed, a pound of dill-seed, as much cummin-seed, and an ounce or two of assa-fœtida: mix all these together with a little wheat-flour, and some fine-worked clay; when it is well beat together, put it into two pots, and bake them well in an oven;
and

and when they are cold, lay them long-ways on the stand or table in the dove-house.

C H A P. XII.

Of Bees.

BEES are to be valued for their profit, and the small trouble that attends them, there being no fruit nor flower, no wood nor forest, no hill nor dale, no fruitful nor unfruitful soil, but what affords them matter to work upon; nor is there any time wherein they are idle, except the extremest cold and wet season.

A convenient and necessary place ought to be made choice of for your apiary, or bee-garden, to place your hives in; which, if 'tis near the house, is the most convenient to look after at swarming times, and on other occasions: let it be securely fenced from all sorts of cattle, especially hogs, and from all sorts of fowl whose dung is very prejudicial to them. Let them be well defended from high winds on every side, with such fences as may let the sun come to them: but they should be sheltered with some high buildings or brick wall that is solid, that it may keep the winds from coming through it, as well as over it: that place being best for them, that is most exposed

posed to the south, and where they may have the best opportunity to settle at their hives, when they come laden home.

It is also very convenient to plant several trees and shrubs at some reasonable distance near home, for them to pitch on at their swarming, that they may not be in danger of being lost for want of a lighting-place. Limes, phillyreas, sycamore-trees, and firs, are particularly good to be planted near them, because from their flowers they draw a great deal of honey and wax.

The place being fitted, the seats to set the hives on are to be provided; which, whether they be stools or benches, must be set a little shelving, that the rain may neither run into the hive, nor stay at the door.

'Tis not reckoned good to set any hives on a bench; because in winter it may cause the bees to fight, by going into one another's houses, which they may sometimes mistake for their own; and therefore some esteem single stools best, which are to be set at about two foot distance from one another, and to be supported with four legs, about twelve or fourteen inches from the ground. For their size they should not be above half an inch or an inch bigger than the hive, save only before, where there ought to be the space of three or four inches,

ches, that the bees may have room enough to light upon it. The best stools are of wood. Those of stone are too hot in summer, and too cold in winter.

The stools should be set towards the South, or rather a point or two to the west, that the hive may somewhat break an east-wind from the door, and stand in straight rows from west to east.

Mr. Worlidge proposes to make for every hive of bees you intend to keep, a cot or house of about two foot square, and two foot and a half high, set on four legs, about ten inches above ground, and five or six inches within the ground, and covered with boards or tiles to cast off the rain, the back or north side being closed up very close, and the east and west sides to have doors to open and shut at pleasure, with hasps to them, and at the face or south side to have a falling-door that may come about half way down, which is to be elevated at pleasure, and serves in summer for a pent-house; not only to beat off the rain from the hives, but to defend them from the extreme heat of the sun, which is apt to melt their honey. The other lower half should have two small doors to open to either hand, which will serve to defend the holes of the hives from injurious winds. When the winter approaches, and the cold winds are like to injure

injure the bees, you may then fasten all the doors, which will defend the bees from the extreme of heat and cold, both which are injurious to them.

In winter if you find them stand too cold, you may stuff straw within the doors to keep them warm ; but the extremity of the cold doth not do them so much injury as wet ; which these cases best preserve them from. They likewise prevent the bees getting abroad upon every sun-shine day, because the hives stand six or eight inches within the doors, which makes them dark, and the bees insensible of a small heat : when after the common way of stools or benches, the sun casts its rays to their doors ; which warmth and light together, excites them forth to the expence of their provision, and the loss of their lives, as is evident by frequent experience ; the mildest and clearest winters destroying or starving the most bees ; whereas the coldest and most frosty winters best preserve them.

In Spring as soon as the willow or withy blossoms appear, you may open the under doors, that the light and warmth of the sun and air may encourage them to work ; or else you will hinder their early breeding, and make them slothful.

Several sorts of hives are used in several countries ; but the general sort used in

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England

England or Ireland are wicker hives made of privet; willow or harl daub'd with cowdung tempered with dust, ashes, or sand; or hives made with straw bound with brambles: some, out of curiosity, that they may see the bees work, have them made of wood with glass, but they are very cold; so that bees do not thrive well in them. Others have placed double hives one by another, and some upon the tops of others, that so by taking of one of them away, they may leave the other for the bees without driving or killing them: but as I cannot find any of these experiments brought to perfection; so I shall not treat of them, till I can get a full account of some experimental progress that is made in them.

The best hives, and those that are the most in use, and warmest, are the straw-hives, the bigness of which should be of between five and seven gallons, of a round form, rather broad than high; but you ought to have of each size, that you may suit your swarms to them according as they are bigger or lesser; and where you design to multiply your stock, make use of small hives, and of the larger where you desire a great deal of honey.

Your hives being thus made, you must dress them after this manner: take off all the staring straws, twiggs and jaggs that
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are offensive in the hive, and make them as smooth as possible. If you need but few hives, you may prune them with a knife: if many, singe and rub them with a piece of brimstone.

Your hive being pruned, put in your spleets three or four of them, as the largeness of your hive shall require: the upper ends thereof set together at the top of the hive, and the lower fasten about a handful above the skirt. Besides these spleets the straw-hive should have four other spleets driven up into the skirts, to keep the hive from sinking when it is loaded; two of which are the two door-posts, the other two are hind-posts, set at equal distances.

In swarming time the hives that you are minded to use, rub with sweet herbs, as thyme, balm, savoury, marjoram, fennel, hyssop, bean-tops, &c. and when the swarm is settled, take a branch of the tree whereon they pitch, and wipe the hive clean with it, and wet the inside of the hive with honey, mead, salt and water, small-beer, or honey and milk, or sugar and milk.

In the next place your hives must be kept close for defence of your bees, first, from the cold by mixing of cow-dung with lime or ashes, and with sand, with which you must stop up the edges of the hive round, and against winter put a wicket of

a small piece of wood, in which are three or four notches cut just big enough for the bees to go in and out at, that no vermin may get to them.

If the spring be mild, calm and showering 'tis good for swarms; and they will be the earlier: but if it proves a cold, dry, windy spring, then will there be but few swarms, and those also backward. Dry weather makes plenty of honey, and most of swarms.

About the middle of May in an early spring, you must begin to look after them, and observe what you can of the usual signs that precede their swarming, that you may be the more watchful over those that require it. When the hives are full (before which they will never swarm) they will cast out their drones, although they be not quite grown, and the bees will hover about the doors. In cold evenings or mornings there will be a moisture or sweating upon the stool, and they will continually be running up and down hastily, and lie out in sultry evenings and mornings, and go in again when the air is clear.

If the weather be warm and calm, the bees delight to rise; but especially in a hot gleam after a shower or gloomy cloud hath sent them home together. Then sometimes they gather together without at the door
not

not only upon the stool, but the hive also: where when you see them begin to hang in swarming-time, and not before, you may be sure they will presently rise, if the weather hold.

To lie forth continually under the stool or behind the hive, especially towards the middle of June, is a sign or cause of not swarming: for when they have once taken to lie forth, the hive will always seem empty, as though they wanted company, and they will then have no mind to swarm.

Much stormy and windy weather also will not suffer them to swarm when they are ready, and that makes them lie out, and the longer they lie out the more unwilling they are to swarm.

Another cause of lying out is continual hot and dry weather, especially after the solstice; which causing plenty of honey both in plants and dews, their minds are so set upon that their chief delight, that they have no leisure to swarm, although they might most safely come abroad in such weather.

But to make them swarm, some keep the hives as cool as may be, by watering and shadowing both them and the place where they stand, and then enlarging of the door to give them air, they move the cluster gently with their brush, and drive them in.

If yet they lie out and swarm not, then the next calm warm day about noon, while the sun shineth, put in the better part with your brush, and the rest gently sweep away from the stool, not suffering them to cluster again. These rising in the calm and heat of the sun, by their noise, as tho' they were swarming, will make the other come forth perhaps unto them, and so they may swarm.

Divers other ways have been attempted to cause bees to swarm, as by placing a large pewter-platter under the cluster of bees as they hang out in the heat of the sun, so that it may strongly reflect the heat upon them, which will provoke them to swarm.

If none of these ways will cause them to swarm, but that they lie forth still, then rear the hive enough to let them in, and cloom up the skirts all but the door: if this succeed not, there is no remedy.

The signs of after-swarms are more certain. When the prime swarm is gone, about the eighth or tenth evening after, when another brood is ready, and again hath over filled the hive: in the morning before they swarm they will come down near the stool, and there they call one another, and at the time of swarming they descend to the stool, where answering one another in more earnest manner with thick
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and shriller notes, the multitude come forth in great haste, &c.

If the prime swarm be broken, the second will both cast and swarm the sooner, it may be the next day, and after that a third, and sometimes a fourth, but all usually within a fortnight; sometimes also a swarm will cast another that year.

When the swarm is risen 'tis the usual custom to make a noise with a pan, kettle, mortar, &c. but some reckon it an insignificant ceremony, and others esteem it prejudicial. But if they like to be gone, cast dust or sand amongst them to make them come down.

When your swarm hath made choice of a lighting-place, you shall quickly see them knit together into a cluster; when they are fully settled, and the cluster hath been a while at the biggest, then hive them. And having in store several hives of several bignesses, make choice of one that the bees may go near to fill it in that year, but rather under-hive a swarm than over-hive them, and rub the hive with sweet herbs, as is before directed.

Let the hiver drink a cup of good beer, and wash his hands and face therewith, or being otherwise defended, if the bees hang upon a bough, shake them into the hive, and set the same upon a mantle or cloth
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on the ground, as is usual; or you may cut off the bough if it be small, and lay it on the mantle or cloth, and set the hive over it, which is the better way.

If they light near the ground, lay your cloth under them, and shake them down, and place the hive over them; and such bees as gather together without the hive, wipe them gently with your brush towards the hive: and if they take to any other place than the hive, wipe them off gently with your brush, and rub the place with worm-wood, nettles, may-weed, &c. Then set the swarm as near as you can to the lighting-place, till all be quiet; every one knowing his own house.

If the swarms part, and light in sight of one another, let alone the greater, and disturb the lesser part, and they will fly to their fellows: but if not in sight, hive them both in two several hives, and bring them together, shakeing the bees out of one hive on the mantle whereon the other hive stands, and place the other full hive on them, and they will all take to it.

If it happen that your swarm come late after the middle of June, and that they are small, under the quantity of a peck; then put two or three of them together, whether they rise the same day or in divers; for by this uniting they will labour carefully, and
gather

gather store of honey, and stoutly defend themselves against all enemies. The manner of uniting them is thus :

In the evening when it waxeth dark, having spread a mantle on the ground, near unto the stool where this united swarm shall stand, set a pair of rests or two supporters for the hive ; knock down the hive out of which you intend to remove your bees upon the rest ; then lift up the hive a little, and clapping it between your hands to get out the bees that stick in it, lay it down sideways by the bees, and set the stock to the swarm to which you would add them, upon the rests or supporters over them ; and they will forthwith ascend into the hive ; those that remain in the empty hive, by clapping it will hasten after their companions. When you have gotten them all in, either that night or early the next morning, place the hive on the stool, &c.

Some reckon it better to place the hive wherein you have newly put your swarm you intend to drive into another, in a place that the skirts may be uppermost, and set the other upon it, binding them about the skirts with a towel : and so let them stand till the morning, and the bees will all ascend that you may the next morning set the receiver on a stool : and thus you may put three or four swarms together : but observe

to unite them the same evening, or the next at farthest, that they swarm; lest having made combs, they are the more unwilling to part from them.

In these several ways of dealing with bees, 'tis good to defend ones self as well as may be against their stings; the securest way of doing which, is to have a net knit with so small marshes that a bee cannot get through; and of fine thread of silk large enough to come over your hat, and to lie down to the collar of your doublet; through which you may perfectly see what you do, without any danger, having also on your hands a good pair of gloves; woollen ones are the best.

If a bee happen to catch you unawares, pull out the sting as soon as you can, and take a piece of iron and heat in the fire; or for want of that, take a live coal, and hold it as near, and as long to the place as you can possibly endure it, and it will attract the fiery venom, and afterwards anoint it with some honey or mithridate, or if you take a little spittle and wet it with it, it will cure it.

As soon as a swarm hath entered its hive, they immediately, (if the weather will permit) gather wax, and build combs: that in a few days time there will be large and compleat combs. They lie so thick about them,

them, that it is impossible one quarter of them can be employed at once, until the combs are brought to a considerable length, and then a great part of them may be employed in filling them, and the rest in finishing their cells or combs.

Their number towards the end of summer begins to lessen, for in their prosperity at swarming time, and shortly after, they are far more in number than in the autumn or winter, as you may easily discern between the quantity and number of a swarm, and those you kill when you take them; for the bees of the last year's breed do now by degrees waste and perish by their extraordinary labour, their wings decay and fail them; so that a year, with some advantage, is the usual age of a bee, and the young only of the last spring survive and preserve the kind till the next.

There are several things that are injurious to bees, and much hinder their prosperity, if not prevented.

1. Noise, which may in part be remedied by the situation of the apiary, free from the noise of carts, coaches, bells, echoes, &c.

2. Smoak, where land hath been burnt-beaten near unto an apiary, and the wind hath brought the smoak towards it, a great many of the bees have been killed; which is the reason they will not thrive in or near great towns.

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3. Ill smells are very offensive to them.

4. Ill weather, as wind, rain, cold, heat, &c. which is prevented by the situation and fencing of the apiary, and ordering of the stocks as before.

5. The mice, birds, and other devouring creatures which are to be destroyed.

6. Noisome creatures, as toads, frogs, snails, spiders, moths, ants, &c. which you must endeavour to keep from them, and cleanse all the hives ever and anon from these vermin.

7. Hornets and wasps in such years wherein they abound, prove great enemies to the bees, by robbing them of their honey: they are destroyed by placing near the door of the hive a glass vial half full of beer, cyder or any such thing, if some sugar be added to it, it will do the better.

8. Bees themselves prove the greatest enemies both by fighting and robbing. Several occasions provoke the bees to fight; which, if the battle be but newly begun, they may be hindered by stopping up the hive close: but if they be gone so far that that most of the bees are out, the casting of dust among them was the antient way.

The best time to remove an old stock is a little before or a little after Michaelmas; or, if you have overslipt that time, then about the end of February, or beginning
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of March, before they go much abroad, lest it prevent their swarming. You may remove them at any time in the winter, but not so well as in the fore-mentioned seasons. The best time of the day to do it is in the evening, next after hiving, let the weather be fair, and do it in the evening when the bees are quiet; the best way of doing of which is thus :

Take a board about the breadth of the bottom of the hive you intend to remove, and in the evening, or two or three evenings before, lift it up and brush the bees that are on the stool forward, and let the board be a little supported by two ledges to prevent the death of the bees on the stool. On this board set the stock, and so let them stand till you remove them. When you come to move them, stop up the door of the hive, and set the board whereon the hive standeth, on a hand-barrow, and carry them to the place you intend.

The feeding of bees is of little use, first, because the bees that have not a profitable stock of honey to serve them over the winter, are not fit to keep: and then because they that are bee-masters, and have not care enough of them to keep them from spending of that stock they have in winter time, must not expect to reap any considerable advantage by them; and it may be

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presumed will never take so much pains and care as is required in feeding of them. But as there are some stocks of bees in the spring time that may seem worthy of our care to preserve, viz. Such as having but a small stock of honey, and a good quantity of bees, by means of a cold, dry, unseasonable spring, cannot make such timely provision as in other years they might have done, yet in all probability may prove an excellent stock, and may be worth our assistance. Food may be afforded to them several ways, but the best is by small canes or troughs conveyed into their hives, into which you may put the food you give them: The chief time of feeding them is in March when they begin to breed, and to sit on their young ones, which must be daily continued till the spring season affords them ease and provision abroad, because at that time their combs are full of young bees. About the middle of August, weigh your hives, and take the heaviest; and the lightest, if they do not weigh fourteen pounds, they will hardly maintain themselves over winter.

Of all food, honey is the best and most natural, which will go the farther, if it is mixed well with a moderate proportion of good sweetwort. Some prescribe toasts of bread sopped in strong ale, and put into

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the bee-hive, whereof they will not leave one crumb remaining ; some also advise to put into the hive dry meat, or flour of beans ; others bay-salt, roasted apples, &c. which are very good, especially salt : which if some were mixed with water, and always set near them, it might do well, it being certain, that bees near the sea always thrive the best ; which some attribute to their drinking of salt water, they flying (say some) many miles to get it.

Mr. Worlidge proposes for the improvement of bees, to take a handful of baum, one dram of camphire, half a dram of musk dissolved in rosemary, as much yellow bees-wax as is sufficient, oil of roses as much ; stamp the baum and camphire very well, and put them in the melted wax with the oil of roses, and so make it up into a mass, letting it cool before you put it in the musk ; for otherwise the heat will fume away most of the scent.

Take of this mass so much as a hazle nut, and leave it within the bee-hive ; it will (as he says) much increase the number of the bees, and you shall also find both honey and wax three times more profit, than otherwise you should have had.

A great thing to advance your bees is the having of fields near you, sowed with brand, cole-seed or turnips, from which

they will draw great quantities of honey. Beans also are good for them.

As the chief aim of the keeper of bees is an advantage in their honey and wax; so many have endeavour'd to find out some way to reap the profit of the bees without destroying them. One way that has been used for this purpose is driving them after this manner. In September, or any other time after they have done breeding (else the honey will be corrupted by the young bees in the combs) place the hive you intend to take with the bottom upwards, between three or four stakes, and set the hive you intend to drive the bees into, over the same as before directed, in the uniting of swarms; then often clap the under hive between your hands in the evening; and so let them stand till morning: and then clap it again, and get as many bees out as you can, which will repair to the other hive. This way is something troublesome to the unexperienced; yet beneficial in such cases, where you have a great stock of honey and few bees in one hive, and a small stock of honey in another; by which means you save the lives of your bees, which will gladly exchange their hungry habitation for a more plentiful.

But these ways have altogether failed the designs of the undertakers, as I said before.

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And therefore I shall at present only describe the common usage, which is the taking of combs by killing the bees, which must certainly be the only way of ordering them; because 'tis impossible for them to live, if you deprive them of their food; and therefore about the latter end of August consider with yourself what stalls you will keep, and what you will kill; the best swarms to keep are those of one or two years standing; and those of three or four, which by reason of their swarming the last summer, are full of bees, and are the most likely to be best; but those of that age which have cast hives, not being like to continue, are to be taken, as are also poor swarms not worth the feeding, and all night stocks, and such as do not carry out their dross, and drive away the drones in good time; also those whom the robbers easily assault, are to be suspected; and if their combs be once broken, delay not their taking; and also all stalls of three years old, or upward, that have missed swarming two years together, especially those that have lain out the summer before, and did not cast the last summer; for such do seldom prosper; and therefore 'tis better to take them while they are good, than in a vain hope of increase to keep them till they perish. Neither is it safe to trust to any after they have stood
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five years and upwards, that have missed swarming two years together, unless it be some special sort of bees, which always keep themselves in heart: such as these may be kept nine or ten years. Likewise if you have any that are very full of honey, as some years some will be, even down to the stool, such stall is worth three or four, and therefore take them in their season.

Having made choice of your stalls to be taken, two or three hours before sun-setting, dig a hole in the ground of about nine inches deep, and almost as wide as the hive-skiits, laying the small earth round about the brims; then having a little stick, slit at one end, and stripp'd at the other, take a brimstone-match five or six inches long, and about the bigness of your little finger, and making it fast in the slit, stick it in the middle or side of the hole; so that the top of the match may stand even with the brim of the pit, or within one inch of it, and then set another by it dressed after the same manner, if the first be not sufficient. When you have fired the matches at the upper end, set over the hive, and presently shut it close at the bottom with the small earth, that none of the smoak may come forth; so shall you have the bees dead in a quarter of an hour.

The hive being taken and housed, lay it softly on the ground upon the sides, not
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the edges of the combs; and loosen the ends of the splints with your finger, and the edges of the combs where they stick to the sides of the hive, with a wooden slice take them out one after another, and having wiped off the half dead bees with a goose feather, break the combs presently while they are warm, into three parts.

The honey which first flows of itself from the combs is called Virgin Honey, (as is also the honey which comes from the first year's swarm.) This is the best and finest honey, being more crystalline, and of a finer taste, than that which is squeezed out of the combs, and so may be kept for particular uses, or for the making of the finest mead, I shall conclude at present with giving you some account of the way of ordering your honey and wax, with the virtues of them, that you may be the more sensible of the advantages that accrue to mankind by this small insect.

When your combs have run out as much as they will, put it up warm into pots by itself; this being the finest honey, as I said before; and it will for two or three days time work up a scum of coarse wax, dross, and other stuff, which must be taken off. The other honey, which is the coarser sort, you must get from the combs, by pressing them, which you may pot also, except
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what you design for the present to make metheglin with; which being done, what remains put into a hair bag and wash in a trough or other vessel to make mead or metheglin; and when the sweetness is all washed out, being crushed dry, try the balls for wax.

The manner of ordering which is as followeth.

Take the wax and dross, and set it over the fire in a kettle, or other vessel that may easily contain it, and pour in so much water as will make the wax swim, that it may boil without burning, and for this reason while it is gently boiling over the fire, stir it often; when it is thoroughly melted, take it off the fire, and presently pour it out of the kettle into a strainer of fine thin linen, or of twisted hair ready placed upon a screw or press, lay on the cover, and press out the liquor (as long as any wax comes) into a kettle of cold water, but first wet both the bag and the press to keep the wax from sticking; at the first cometh most water, at the last most dross, and in the middle most wax.

The wax growing hard make it into balls squeezing out the water with your hand. Which when you have done, break all the balls into crumbs, and in a kettle or skillet set it over a gentle fire: while it is melting
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stir it and skim it with a spoon wet in cold water; and as soon as it is melted and scummed clean, take it off, and pour it into a pan or mould, besmearing the bottom and side first with honey, (the wax being as cool as it will run through a linen strainer :) when you come near the bottom, pour it gently, till you see the dross come, which strain into some other thing by itself: and when it is cold, either try it again, or (having pared away the bottom) keep it for use.

When the wax is in the pan or mould, if there is any froth remaining on the top, blow it together at one side, and skim it off gently with a wet spoon. This done, set not the cake abroad where it may cool too hastily, but put it in a warm house not far from the fire; and if it be a large cake, cover it warm to keep the top from cooling till the inward heat be allayed, and so let it stand, not moving it till the cake be cold; if it stick, a little warming the vessel or mould will loosen it; so that it will presently slip out.

The properties of good wax are, that it is yellow, odoriferous or sweet, fat, fast or close, light, pure, being void of any other matter. 'Tis always a ready money commodity, especially English or Irish wax, which is much better than foreign, and
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commonly sells for about five or six pound a hundred; it being of extraordinary use both in surgery and physick; besides the use that is made of it for lights, the clearness and sweetness of which makes it preferred before all other sorts.

As to its chirurgical or physical virtues, 'tis reckon'd a mean between hot and cold, between dry and moist, being the ground of all searcloths and salves: it mollifies the sinews, ripens and resolveth ulcers; the quantity of a pea being swallowed down by nurses, dissolveth the milk curdled in the breast. It's oil is of excellent virtue to cure wounds, be they never so large or deep (being before stitched up) in ten or twelve days at the most, and healeth small wounds in three or four days, by only anointing the wound therewith; and applying a cloth wet in the same, stayeth the shedding of hair, either on head or face, by anointing therewith. And 'tis as good for inward diseases, if you give one dram at a time in white-wine, it will provoke urine, help stitches and pains in the loins, the cold gout, and all other griefs, coming of cold.

Honey is little inferiour, either as to its benefit or usefulness; 'tis of subtil parts; and therefore doth pierce as oil, and easily passes the parts of the body; it hath a power
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to cleanse, and therefore it openeth obstructions, and cleareth the breast and lungs of those humours that fall from the head; it looseneth the belly, purges the foulness of the body, and provoketh urine; it nourisheth very much, and breedeth good blood; it prolongeth life, and keepeth all things uncorrupted which are put into it; and therefore physicians do temper therewith such medicines as they design to keep long. 'Tis good for such as have eaten mushrooms, or drunk poppies; it's an eminent ingredient in the great antidotes of treacle and mithridate, and is good against pleurifies, phthisicks, and other diseases of the lungs. But 'tis for any distemper much better to be taken clarified than raw, it being thereby made more nourishing, lighter of digestion, and less laxative, as also less sharp, &c.

C H A P. XIII.

Of making Hay.

WHAT upland you design for mowing, shut up the beginning of February; but your low meadows and marsh lands you need not lay up till April, except the spring be very wet, and your marshes very poachy. Many feed them 'till the first of May, especially those that are in danger of overflowing. In spring let all the

the sticks, stones, and other trumpery, be picked up, and the mole-casts spread, they will otherwise hinder the mowers: and if your meadows lie any thing uneven, or have been poached in winter, rowl them with a large wooden roller; because the mowers will be able to cut much the closer, and the quantity of hay will answer the trouble. A man may mow near an acre of meadow in a day; if it stand well and be even, more than an acre; and if the grass be thin on up land, mowing grounds, then still more.

For the time of mowing grass, it must be according to the growth or ripeness of it; nothing is more prejudicial to your crop than mowing it too soon, because the sap is not fully come out of the root; and when 'tis dry, it shrinks away to nothing: nor yet to let it stand too long, till it has shed it's seed, and that all the sap is dried up, which only is the nourishing part of it for cattle; and therefore to know when grass is fit to cut, look carefully upon it, and when you see the top thereof look brown, and begin to bend their heads, and that the red honey suckle flower begins to wither, which will commonly be about the middle or latter end of June, you may conclude it ripe. As soon as your grass is mown, if there is plenty of it, that it lie thick in the swath, so as that neither the air nor sun can pass freely through

through it, cause your hay-makers to follow the mowers, and to cast it a road (except you fear wet; if you do, let it lie upon the swath) this they call tedding of it. At night make it into grass cocks, the next day as soon as the dew is off the ground, spread it again and turn it, that it may wither on the other side; then handle it, and if you find it dry, make it into cocks. Next day spread it again, and draw it into long rows, which they call winrows, which is a convenient way to dry the hay, and makes it easy to get together again in case of rain, to make up into large cocks which will secure it from wet, though you let them stand a day or two. Be sure, before you carry your large cocks in, to open them once, and to spread them in the sun, because 'tis apt to give in the cock; and if any rain happen to fall on your hay, do not turn it 'till the upper side be dry: for to turn the wet grass to the moist earth is the readiest way to rot it; neither open any of the cocks, till the outside of them is dry. Where thick-leav'd weeds are amongst the grass, they will need more drying than ordinary grass doth; and when you have good weather, put in all the hands you can, that you may observe the old saying of making hay when the sun shines.

Mowing of land too often and too long is a very great prejudice to it, except it be

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land

land that is constantly mended with water-floods: and therefore where you have not that conveniency once in three years, or every other year, feed your mowing lands, if you cannot get manure constantly to keep them in heart. For feeding is as necessary for hay-ground, as fallowing is for corn-grounds. I shall not say any thing of after-crops, because I think them neither good for the land, nor yet the hay good for cattle.

C H A P. XIV.

Of several sorts of Grass-Seeds.

I Shall not say much for the recommending of these grasses, because most by experience know their profit; but only teach you to manage them, and then describe their several kinds.

In sowing of all sorts of grass seeds, let your land be plowed more than once, to kill the natural grass and weeds, which else are apt to choak it; and they must be sowed after the corn that you sow with them, so as to harrow the land but once over after they are sown, which is best done with a bush or a gate stuck with bushes.

§ 1. *Of Clover-Grass.*

Of the several sorts of these kinds of seeds, that which the precedency is commonly

monly given to, is the clover-grass, for the great improvement it makes upon land, the goodness of its hay, and the profit of its feed, which most authors give a very great account of the advantage of: but as they are silent about the nature of the land, that these great improvements have been made upon, and of the particular way of ordering such lands; so their accounts are very short in respect to the particular application that might else have been made to lands of the same kind: but the great advantage of clover is, that it improves land by the great quantity of cattle it maintains, and fits it for corn again in two or three years time, it being one of the best ways of improving most sorts of lands, especially clays, where manure is scarce, and therefore much used in clay countries.

Clover is of several sorts; the great clover is reckoned the best, whose feed is like that of mustard, except in that it is rather an oblong than round; the choicest of which is that of a greenish yellow colour, some of it a little reddish; but the black is not so good. English seed is the best.

An acre of ground will require ten pound of seed, and some land twelve pound; 'tis better to sow it too thick, than too thin: some have sown a great deal more with good advantage. It delights most in a rich

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warm

warm foil, and such lands as are most dunged, marled, limed, &c. as I shall shew hereafter. But the clays that are long in swarding, and little subject to weeds, are the best land for clover; because in those lands that graze speedily the natural grass eats it out, which all sorts of light lands are subject to, and likewise to wash from the roots of the clover, so as to leave them bare, which gives opportunity to the frost to kill it. But in the best grounds it will not bare any thing of a good crop longer than three or four years. To choose good clover seed, put some of it into a glass of water, and that which sinks is good, but that which swims is nought.

The usual way of sowing it is, either with barley or oats after the corn is sown, which 'tis best upon this account, to sow something thinner than ordinary. The usual time of sowing it is at the end of March, or beginning of April, in a calm day; but the best time of sowing it in dry lands, is with black oats, as forward in the spring as you can, that so it may get up while the rains last, before the dry weather comes; some sow it with wheat or rye at Michaelmas, which gives it an opportunity of shedding its seed, and occasions its growing thick, and lasting longer; but then 'tis best sowed upon dry lands that will bear sowing of both the wheat
and

and the rye upon broad ridges. This way 'tis most certain of taking, if it prove a mild winter : but if hard frost and great snows come, 'tis very hazardous; though some advise the sowing of it alone at Michaelmas, which, they say, makes it come up freer from weeds, than if sown in spring, and will cause it to get strength enough to preserve itself against winter : and some sow rey-grass with the corn at Michaelmas, and early in the spring sow the clover, which they cover only by rowling of it. These ways are what, I must confess, I have not known the experience of, but I am certain that the frost will not hurt the root, if it doth lie bare, though it will spoil all the grass; for which reason most take care to feed it close before the winter comes.

About the middle or end of May, you may cut the first crop for hay, which takes up more time and labour to dry than ordinary grass, and will go very near together; yet if it grow not too strong, it will be exceeding rich and good for the fatting of cattle. The exact time for cutting of it is when it begins to knot. Some after the first crop mow two other crops before winter; but they seldom have weather good enough to make the last crop well; and therefore 'tis better to take but one crop more, especially if you design it for seed,

which you must let stand till thorough ripe, for it will not be very ready to shed. When you first observe the seed in the husk, it will ripen in about a month's time more; and when the seed begins to change its colour, and the stalk begins to die, and to turn brown, and be of a yellowish colour, mow it in dry time, and preserve it as dry as you can: it ripens some years sooner than others; and therefore you must be guided by the ripeness of it. If clover is apt to wear out of your ground, and you have a mind to continue it without new sowing, mow it the latter end of May, and let it stand about three months till it casts its seed, and then feed it with cattle, and it will sow itself afresh, and come (as I am told) as thick as if new sown.

One acre of this grass will feed as many cattle as five or six acres of common grass. Some reckon the best way to feed cattle with it, is to put it in racks, because of the great quantity that they tread down with their feet, and because it shrinks so much in drying.

Great care must be taken of cattle that are first put into it, lest it burst them. To prevent which, some give them straw with it, and some stint them as to quantity; but the best way is only to turn them into it
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the first day about noon, when the dew is off, and in a dry day, for about half an hour ; the next day for an hour ; the third day for two ; and then for three or four days put them in as soon as the dew is off the ground, and let them stay in till four or five o'clock in the afternoon, and after that there will be no danger, especially if 'tis not too wet weather. If 'tis, be the longer before you let them stay in all night. However, 'tis better for any other cattle than milch cows. But some sow trefoil or rey-grass with their clover, which very much prevents it doing of injury to cattle ; and as 'tis a grass that grows very upright, it shoots through the branches of the spreading clover, and makes the crop much better.

Your clover being preserved dry, about the midst of March, thrash it, and cleanse it from the straw as much as you can, and beat the husk again ; being very well dried in the sun after the first thrashing, get what seed you can out of it, and after you have thrashed it, and chafed it with a fine rake, and dried it well in the sun again, if you rub it, you may get out a great deal more : some get above two bushels out of an acre, a good thrasher can thrash out but about six gallons in a day. Some say that the best way of sowing it is in the husk ; but 'tis
some-

something difficult to sow that way. The seed of clover will grow as well at two years old, as at the first. If one could get an account from Flanders how they thrash their clover there, it would be of great advantage for the propagation of it. In some places when they sow their etch crops, they sprinkle a pound or two of clover on an acre, and this they feed off in spring before they fallow their land, which they do a little later than they would else do, especially if they design their fallow for barley.

§. 2. Of St. Foin or Holy Hay.

St. Foin, where it will grow, is esteemed one of the best of these sorts of grasses, because of it's long continuance and bulk: in many lands it will last twenty or thirty years: besides it improves the land it grows on very much; for the plowing in of the roots is excellent manure for it, which is what is not usual with these sorts of seeds. You may break up your land, and sow it with corn till 'tis out of heart, and then sow it with St. Foin again. 'Tis reported to grow on any dry barren land where hardly any thing else will grow; and the roots running deep and growing great, are not soon dried up by the parching heat of the sun; though 'tis reckoned to thrive best in a shallow ground, because else in some soils 'tis apt to run too deep: in some parts it grows on
very

very stony dry hills, where the earth is not above half a foot deep, its roots running in between the cracks of a flaky lime-stone. Which makes me conclude it will do best on land that is sweet, lime-stone being of a sweetning nature to land ; but I could wish that some particular observations were made of the nature of the several lands in the several countries where it doth grow : for 'tis certainly one of the best improvements of land that can be made use of where it will take, especially where manure is scarce. You may sow rey-grass with St. Foin, and I am told it makes a great improvement of it, and yields a good crop the first three years. You may sow five bushels of St. Foin and one bushel of rey-grass on an acre.

A gentleman of my acquaintance tells me he has found a very great advantage by watering his St. Foin in dry weather at new sowing of it, and when it comes up; which he doth with a water cart, carrying his water in a cask, to which he has a tap at the end, which lets the water run into a long trough which is full of small holes.

It must be sown in far greater quantities than the clover-seed, because 'tis a larger, lighter-seed. They commonly allow four bushels to an acre. You need not fear sowing of it too thick, because it the sooner stocks the ground, and destroys all the other

other grass and weeds. It may be sown alone, or with oats, or barley, as the other grass-seeds are but you must be sure to make your ground very fine for this and all other grass-seeds. Do not feed it the first year, especially with great cattle, because the sweetness of it will provoke the cattle to bite too near the ground; and large cattle treading on it is a great injury to it, especially in wet weather; and therefore 'tis best mowing of it the first and second year, and after that it will be out of danger. The marling of St. Foin, when 'tis almost worn out, makes a great improvement of it for three or four years, and after that the grass which the marle produces will be near as good as St. Foin. If once in four or five years you sow it with foot, it will increase it very much, and cause it to last a great deal longer.

The best time of sowing it is in Autumn, from the beginning of August to the end of September, if sowed alone; but if mixed with other grain, in the spring, from the beginning of February till the end of March; the earlier 'tis sown in either season, the better: and 'tis better to be sown alone, than with other grain.

If you reserve it for mowing, it must be laid up by the latter end of March. The time of cutting it is when it begins to flower, which is about the middle of May, some-

some-

sometimes later. This sort of hay is very excellent for horses.

It is the best food for great cattle, especially in the spring. It hath not the danger attending of it, that the clover hath. It breeds abundance of milk, and the butter that is made of it is very good. If you feed it with sheep let it be in autumn, and in the winter : It fattens them very speedily.

§. 3. *La Lucerne.*

This is a plant much commended for an excellent fodder, and by some preferred before any other sort, being to be managed after the same way with other seeds of this kind, and is reckoned to grow on any sort of land ; but the seed coming from France, the war-time hath prevented it's being so much propagated as otherways it would have been ; and therefore I cannot find such observations made about it as yet, as might be expected. They sow twelve or fourteen pound upon an acre. The time of sowing it is about the middle of April. It may be mowed twice a year and fed all the winter. The hay must be well dried and housed, it being otherwise bad to keep. It is good for all sorts of cattle, but best for horses : it feedeth much more than the ordinary hay, and causeth abundance of milk, and must at first be used with caution, and be mixed either with other hay or straw ;
you

you may also feed the grass, but if you mow it, 'tis best to do it but once a year. It will last, as I am told, twenty years. one acre is reckoned to keep three horses all the year, if it takes well. It purges in spring, and makes any cattle fat in ten or twelve days.

§. 4. *Of Rey-Grass.*

This sort of grass is reckoned to grow on any land, but chiefly in cold, sowre, clayey, and weeping grounds. It endures the summer droughts, and the winter-frosts, being the best of winter foods, and springs the earliest of any. The shorter it is fed the better. There can be no danger of overstocking it, because if left to grow too rank, the stalk is apt to grow hard and sticky; 'tis best for horses and sheep, and very much prevents the rotting of the latter. Some sow two bushels to an acre; but the best quantity is three bushels, where they sow it with clover, which is the best way of sowing it. Where land is proper for it, they sow eight pound of clover, and one bushel of rey-grass upon the acre. It will last upon some lands seven or eight years. Some mow it for hay, and thrash out the feed. Some tell you of five quarters being got off an acre. Some, when they find their rey-grass thin, take a bushel of seed and sow it upon an acre, and only roll it in, and
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it will make it very thick. Rey-grafs will kill thistles.

If rey-grafs feed be cut something green it makes the best hay, and the seed will grow, but not so well as if ripe; but you must take care, if the seed is newly thrashed, that it do not lie thick, because it will heat.

§. 5. *Of Hop-clover, Trefoil or Three-leav'd Grass.*

This sort of grass is finer and sweeter than the great clover, and upon some land is a very great improvement, though 'tis reckoned to grow upon any soil. Mr. Hartlib in his legacy, says, that there are twenty-three sorts of it, and that each sort delights in a particular soil; as some of it in watry places, some on dry, some on clay, and some on sand, which may give occasion to most to reckon that it will grow on any land. But there are many sorts of land that will bear but indifferent crops of it, which many times may be occasioned by the not suiting of it to the land 'tis sown on, Concerning which, if strict observation were made, I believe it might be much improved.

It may be sown with corn, as clover, and other grass-seeds are, or alone only for grass, or being sprinkled in meadows, will mend the hay both in quantity and quality.

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They commonly allow twelve pound to an acre. 'Tis reckoned a more lasting sort of grafs than rey-grafs, especially the yellow hop trefoil.

§. 6. *Of several other Grasses or Hays.*

Esparcet is a kind of St. Foin, and by some judged to be the same.

La Romain, or French tares, or vetches, is a grain that in France is sown annually, and is very quick of growth, being very good food for cattle, especially horses; and after feeding it the fore part of the summer, they let it grow for hay. 'Tis not so good as the other grafs-seeds, because it is but of short continuance: it is reckoned to grow on very poor dry land.

Spurry-feed is usually sown in the low-countries twice in a summer, the first time in May, that it may flower in June and July; and in August the seed is usually ripe. The second time of sowing it is after rye harvest, which grounds they usually plow up, and sow with this seed, to serve their kine in winter, when other grafs is eat up. It makes excellent butter. Hens will greedily eat the herb, which will, as Mr. Hartlib says, make them lay the better.

I am told that in some places they make good improvement of their lands by sowing them with parsley, and that it prevents the rot of sheep: others make great improvement

ment of some land by sowing it with mustard seed for the same use. But for these sort of seeds and many other things, I shall refer you to a farther account of this and other particulars, which I shall be obliged to any that will give us any assistance in the information of.

If you design to lay down any land for grass, without sowing it with grass-seed, lay it down when you sow wheat or rye; but then your corn should be sowed on broad ridges. Some some say that St. Foin, Clover, Trefoil, and other grasses of that kind, are found to do better, and to be more lasting, when sown alone, and not according to the usual way, with barley or oats. But I refer these things to experience.

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APPENDIX

APPENDIX.

A Receipt to prevent blight, mildew, blast, or smut in corn; communicated by Mr. Carmichael, of Spaw-Mount, near Dunganon, Sept. 26, 1759.

IT is agreed on all hands that the greatest misfortune which can possibly happen to a crop of wheat, is, that of its turning black or smutty, and as the real cause of such blackness (I fear) hath not yet been found out, the remedy against it hath not been generally and constantly made use of. The cause assigned by all or most of the writers on Agriculture is, that at certain seasons a dense glutinous vapour descends between the setting and rising of the sun upon the ear of corn, and so binds up the valves, (commonly call'd the chaff) in which the growing corn is enveloped, that vegetation is thereby obstructed, because in such circumstances it cannot imbibe those nitrous particles of the air which tend to its maturation, and of consequence it becomes
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a mere rotten heap of putrefaction; from this method of reasoning, we observe the English farmers frequently in a summer's morning haling a rope extended by two persons along and through their corn fields, to shake off their condensed air or dew; but I humbly apprehend, from the following reasons, that they are much mistaken as to the real cause of that distemper.

It being a difficult matter, some time ago to procure clean good seed wheat, in that part of the country where I occupy a farm, I prevailed upon a friend to obtain for me three barrels of the red Lammass-wheat from England; when I had it home, it carried the appearance of as fine grain, and as clean and clear of dirt and smut, as ever sprung from the earth; but upon casting a few bushels of it into my vessel of pickle, I found that at least a sixth part swam at top, and notwithstanding the frequent stirring of it, I could not force it to subside; thereupon I skimmed it off, but to my great astonishment, it had the appearance of as plump and round grain as that which fell to the bottom; I spread it upon a table and examined it more minutely, and could not perceive the least defect in it, but upon opening it with my penknife, I found it was concaved or made hollow on one side of the grain, and not in

the centre, which I apprehend was occasioned by some animalculæ imperceptible to the naked eye, whereupon, for experiment's sake, I sowed the whole of what I so skimmed off, on one part of my fallows by itself, and sowed what subsided on another part, and the consequence of that experiment was, that the greatest share of that swimming corn at the ensuing season, produced a smutty crop, and I had not a single smutty head on the part of the field where the subsiding corn was sowed, but not being satisfied with what had then appeared, I examined more strictly that smutty crop, and I found not only there, but in my neighbours fields, which I also examined, that where two or more Stamina or stalks were produced from one grain of corn (which I discovered by tracing them downward to the root) they were all smutty; and the different sound stamina proceeding from one and the same root, were all sound; from whence it may be reasonably inferred, that vegetation is principally produced, and plants are sustained and grow by the roots or fibres collecting their nutritive juices from the moist earth, which are carried up through the perpendicular tubes by the power of attraction, but by the loss of one part of the grain so maimed, and consequently by a proportional deficiency in the
roots

roots or fibres, which are so many mouths to collect nourishment for the stamina and new grain) they exert only so much strength as to throw out the stalks and heads, but cannot collect sufficient nutriment to compleat or mature the different ears of corn; and it may likewise be reasonably supposed, that those animalculæ which took up their lodgment in the single grain, are in vegetation communicated upwards through the tube of the stamen to the head of the corn, where they are collected and multiplied into an heap of black corrupted matter, as a proof of which, every such single smutted head upon a nice survey is found to abound with little living creatures.

This I take to be a more rational hypothesis, for if such smuttiness were produced from the air, is it to be presumed that it would partially strike those heads only which grow from one root, when promiscuously interspersed with heads proceeding from other roots? Wherefore I apprehend it may be justly recommended to all good husbandmen to be careful in making a strong pickle for their seed-wheat, and to skim off and cast away all the corn which floats, as a sure means of preserving it from smut, but let them be cautious not to let it stand too long in their pickling tubs, before the swimming corn be taken off, for if it is permitted to stand long, those hollow

low or concaved grains will soon imbibe the water, and subside with the sound corn; and as I have gone so far, I will also give you the pickling receipt.

The Receipt.

Take as much dunghill or rotten water which distills from a dunghill, as will make your quantity of corn swim, put therein as much salt with a pound of pulverised nitre, commonly called salt-peter, or in lieu thereof two pounds of copperas, as will cause it to bear an egg, steep your corn twelve hours, after being skimmed of the light corn as above; strain it out and dry it with slacked lime or dry turf ashes, and sow it, but be careful to sow the next day or the day following, for if wet weather happens, and it be kept four or five days out of the ground, the corn peels and will not grow: As the pickle decreases it may be augmented by adding more water and salt, &c. until all the seed intended to be sowed be pickled.

Another Receipt; communicated by a most eminent and esteemed Husbandman and Farmer in this kingdom, from the experience of many years.

Take a quantity of the strongest bay salt, of which, with water, make a pickle, of strength sufficient to bear a hen's egg floating. Steep your seed corn therein for
thirty

thirty hours, or if more it will not be the worse.

This method will not only prevent a *blight*, *smut*, &c. but will even cure *blighty* seed, and free wheat, bear, barley, and all kinds of grain, so that they may be repeated without any ill effects; it also destroys the very pernicious *red-worm*, a vermin most destructive to crops: Besides, it is so cheap, so effectual, and so well known to many, that it is astonishing it hath not been hitherto more used by the industrious farmer.

N. B. This receipt hath not been known once to fail in the course of many years.

♣ Gentlemen who would willingly see curious improvements in tillage, may be highly gratified between Naas and Kilkullen-Bridge, and other parts of the county of Kildare; at Rathnally in the county of Meath near Trim; and at Portmarnock, and many other places in Fingal in the county of Dublin.

Here follow some useful Observations.

* * The best breed of HORNED CATTLE for size and other fitting qualities is to be had in the counties of Meath, Mayo and several parts of Connaught: The most celebrated breeders now residing in those counties.

For

For all other particulars relative to those cattle, as to the management of them in all points, with observations on their distempers, and the most approved receipts for cure, See the whole second chapter of this book, beginning at page 24.

The best SHEEP for breed, &c. are to be had in the counties of *Roscommon, Galway* and *Tipperary*.

The finest HORSES for size, shape, &c. are in the county of *Clare*. There is in many parts of the *North*, a very hardy, serviceable, low-sized Horse, excellent for the road or carriage.

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